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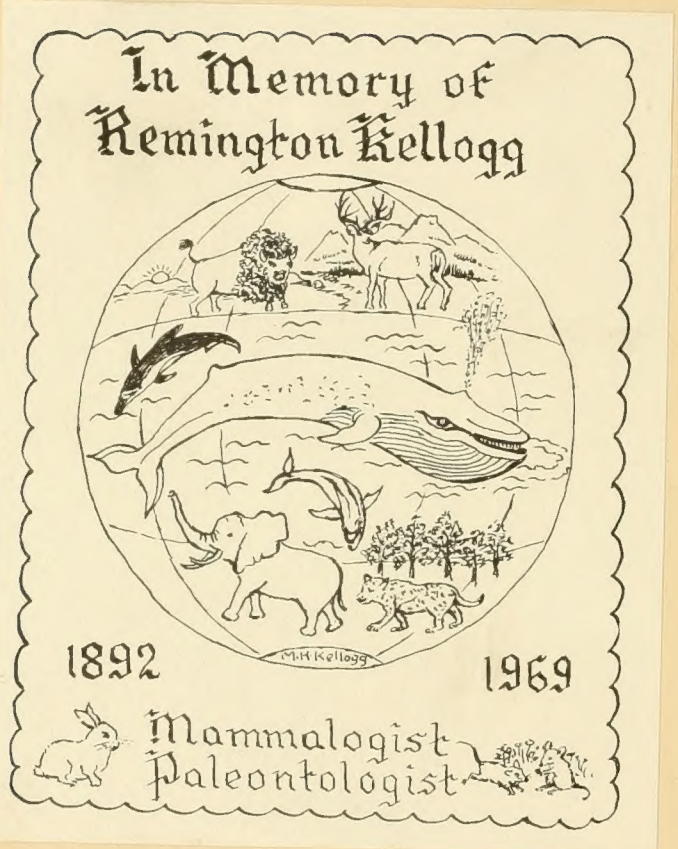
In Memory of
Remington Kellogg
M.H. Kellogg
1892
1969
Mammalogist
Paleontologist

MARYLAND GEOLOGICAL SURVEY

MIOCENE

PLATES

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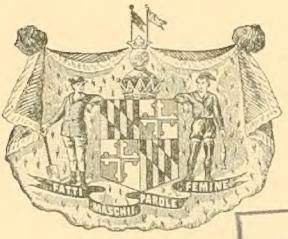

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MIOCENE

PLATES

BALTIMORE
THE JOHNS HOPKINS PRESS
1904

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NOTE

Plates I to IX, illustrating the Geological and Paleontological Relations of the Miocene, are bound with the text volume. The following plates illustrate the Systematic Paleontology of the Miocene Deposits of Maryland.

PLATE X.

PAGE

Figs. 1-3. SQUALODON ATLANTICUS Leidy 6

1. Portion of the right side of a jaw containing three teeth. Shiloh, N. J. Acad. Nat. Sci., Phila. × ⅔
2, 3. Teeth from "Miocene of Maryland" labelled "*Basilosaurus atlanticus*." Acad. Nat. Sci., Phila.

Figs. 4, 5. SQUALODON PROTERVUS Cope..... 7

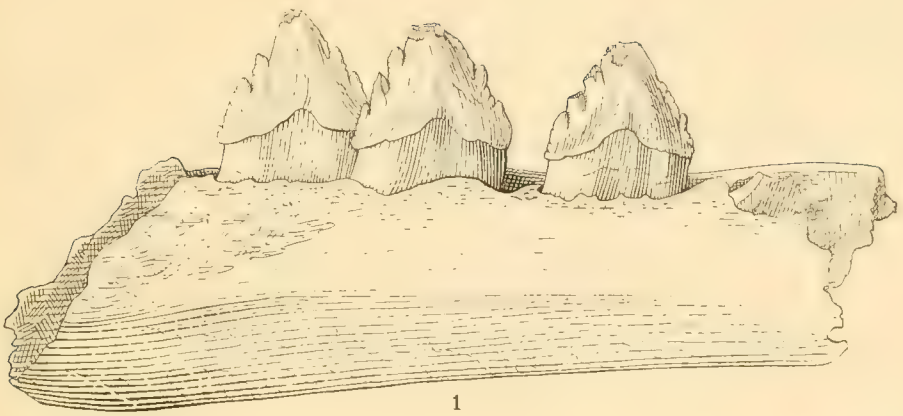
4. Tooth. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.
5. Another tooth from the same locality and collection.

Fig. 6. PRISCODELPHINUS GABBI Cope 9

6. Lumbar vertebra, lower view. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅔

Figs. 7, 8. PRISCODELPHINUS RUSCHENBERGERI Cope..... 10

7. Lumbar vertebra, lower view. Charles County. Acad. Nat. Sci., Phila. × ⅔
8. Caudal vertebra, lower view. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅔



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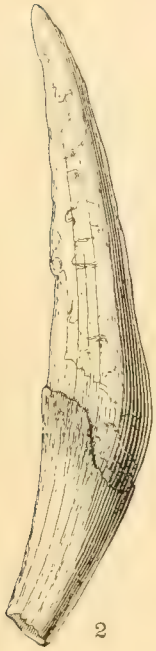

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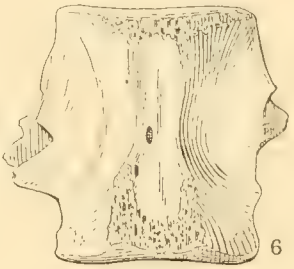

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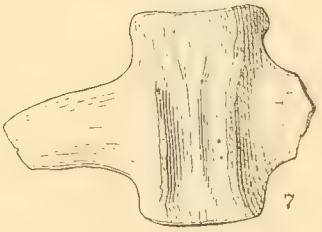

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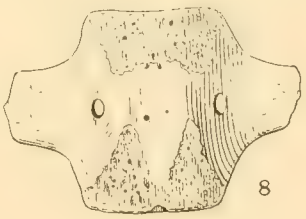

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MAMMALIA.

PLATE XI.

PAGE

Figs. 1a-3b. PRISCODELPHINUS (?) CRASSANGULUM Case..... 12

1a. Inner view of tympanic bone. ¾ mile north of Governor Run. × ½

1b. Outer view of the same specimen. × ½

2. Posterior view of left occipital region. Same locality and collection. × ½

3a. Upper view of lower jaw. Same locality and collection. × ¼

3b. Upper view of upper jaw and anterior part of the head of the same individual with the occiput removed. Same locality and collection. × ¼

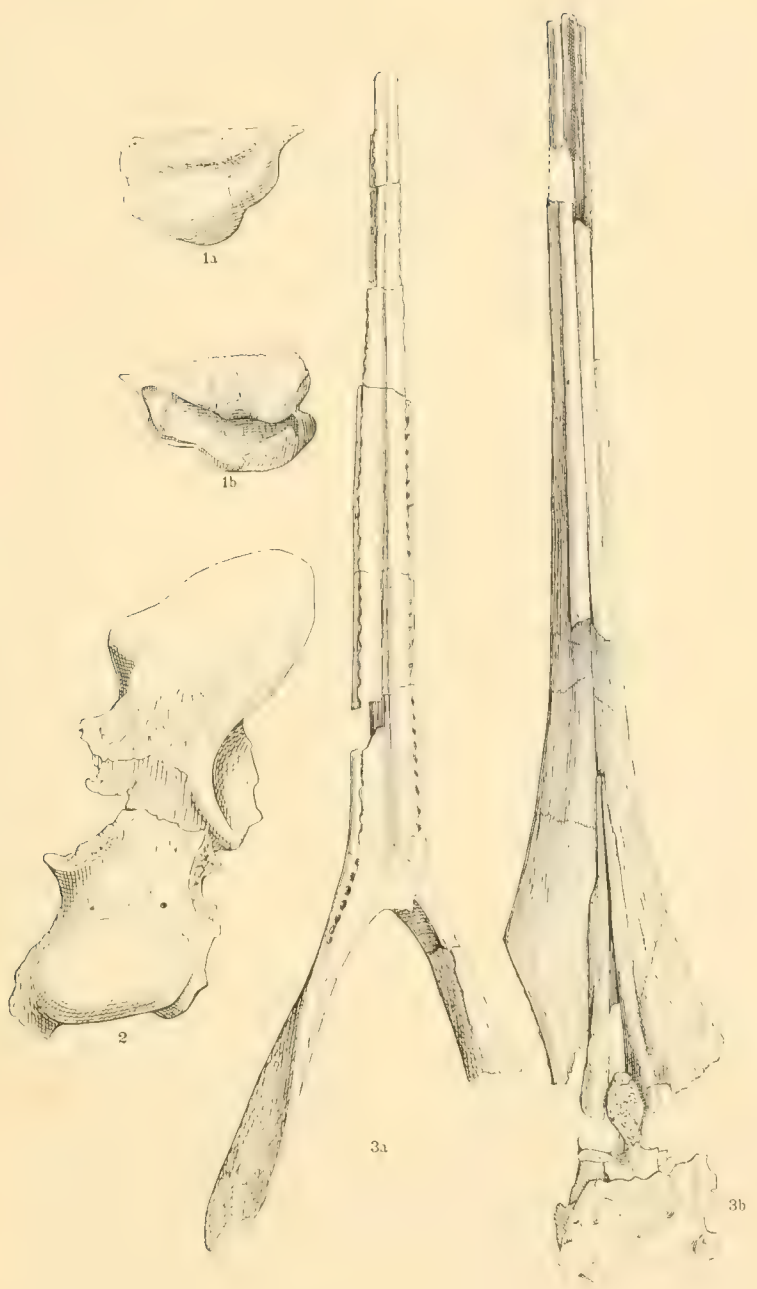

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PLATE XII.

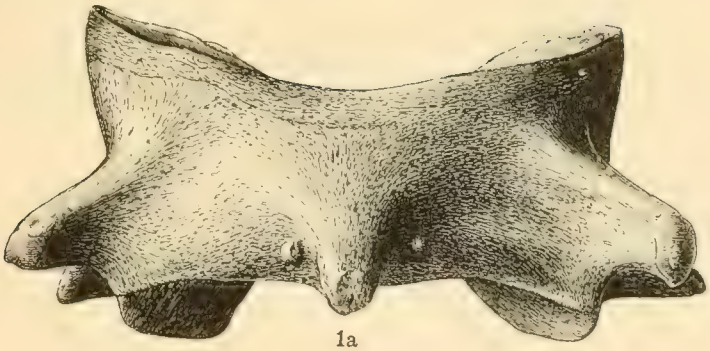
PAGE

Figs. 1a-1c. PRISCODELPHINUS GRANDAEVUS Leidy 15

1a. Specimen from ¼ mile south of Chesapeake Beach. Maryland Geological Survey.

1b. Another view of same specimen.

1c. Another view of same specimen.



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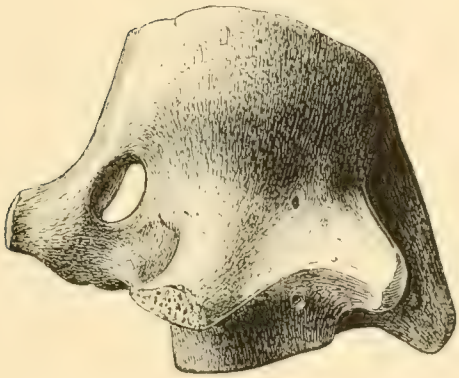

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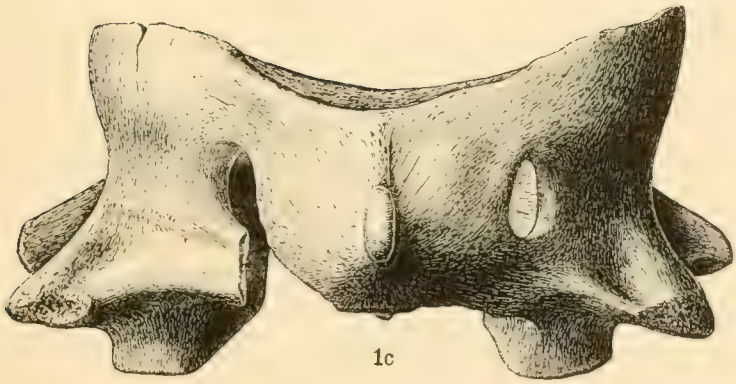

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PLATE XIII.

PAGE

Figs. 1a, 1b. IXACANTHUS STENUS Cope 16

1a. Lateral view of lumbar vertebra. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅔

1b. Posterior view of the same specimen. × ⅔

Figs. 2-4. IXACANTHUS SPINOSUS Cope..... 17

2. Lower view of a posterior lumbar. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅔

3a. Superior view of a cervical. Same locality and collection. × ⅔

3b. Anterior view of the same. × ⅔

4. Lateral view of an anterior lumbar. Same locality and collection. × ⅔

Figs. 5a-6. IXACANTHUS ATROPIUS Cope 18

5a. Lateral view of a dorsal. Charles County on the Patuxent River. Acad. Nat. Sci., Phila. × ⅔

5b. Anterior view of the same. × ⅔

6. Lower view of a dorsal. Same locality and collection. × ⅔

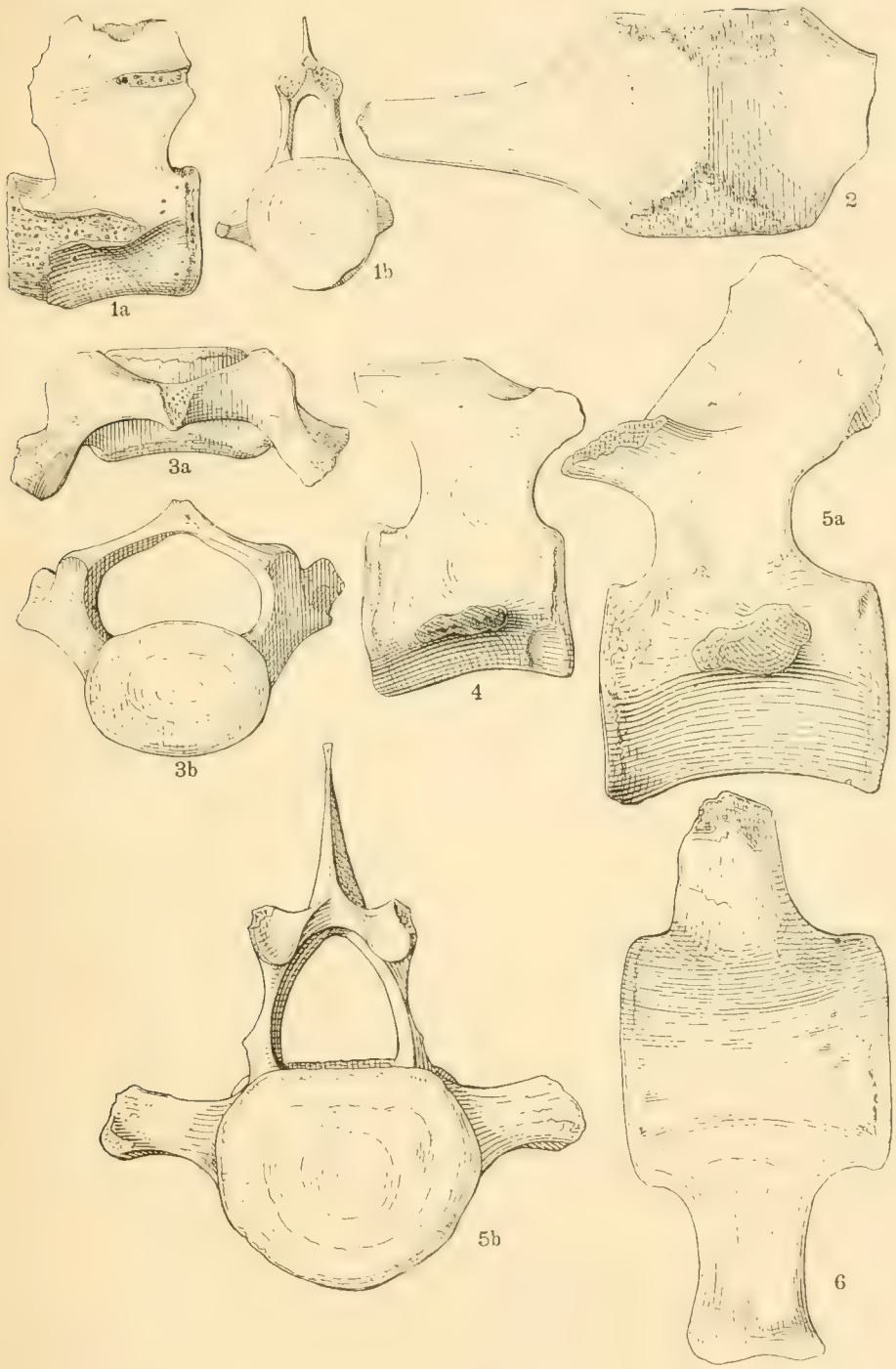

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PLATE XIV.

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Figs. 1, 2. IXACANTHUS COELOSPONDYLUS Cope 19

1. Lower view of a lumbar. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅔

2. Lateral view of a lumbar. Same locality and collection. × ⅔

Fig. 3. ZARHACHIS FLAGELLATOR Cope 20

3. Lower view of a lumbar. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅔

Fig. 4. CETOPHIS HETEROCLITUS Cope 23

4. Lateral view of a lumbar. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅔

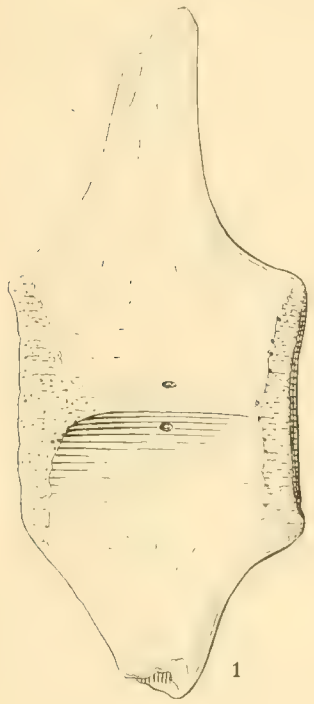

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PLATE XV.

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Figs. 1-5. RHABDOSTEUS LATIRADIX Cope 24

1. Lower view of rostrum. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅓
2. Upper view of another rostrum. Same locality and collection. × ⅓

3a. Tooth from the anterior portion of the rostrum. × ⅓

3b. Another view of the same tooth. × ⅓

4a. Another tooth. Same locality and collection. × ⅓

4b. Another view of the same tooth. × ⅓

5. Another tooth. Same locality and collection. × ⅓

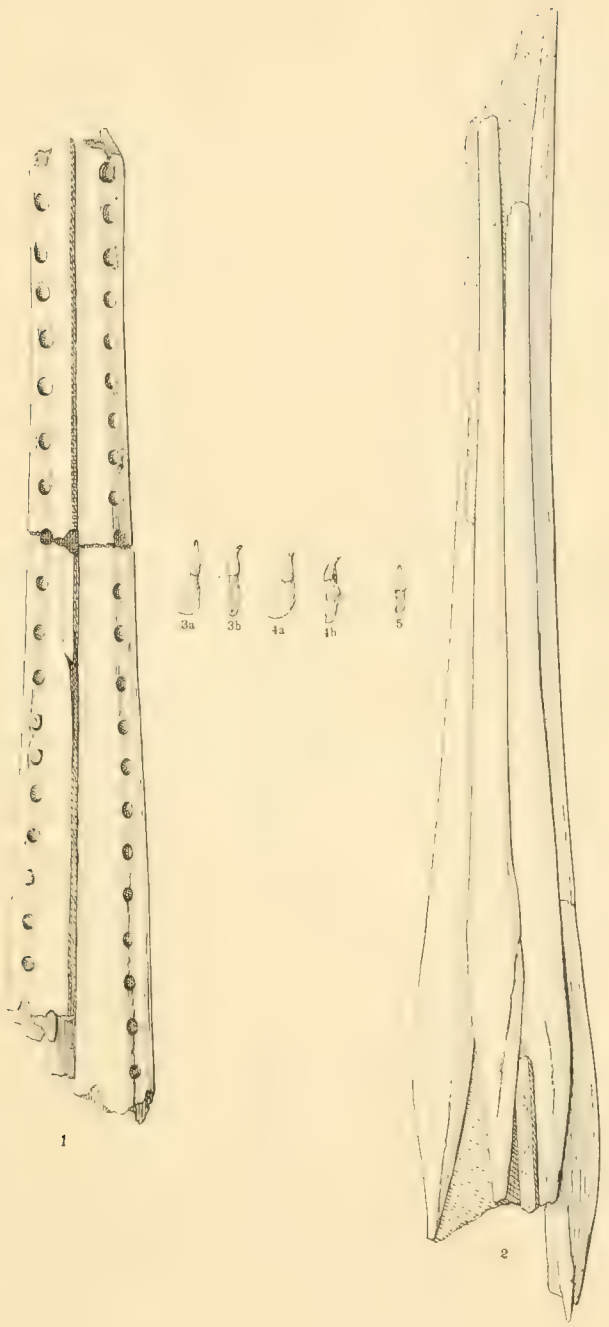

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PLATE XVI.

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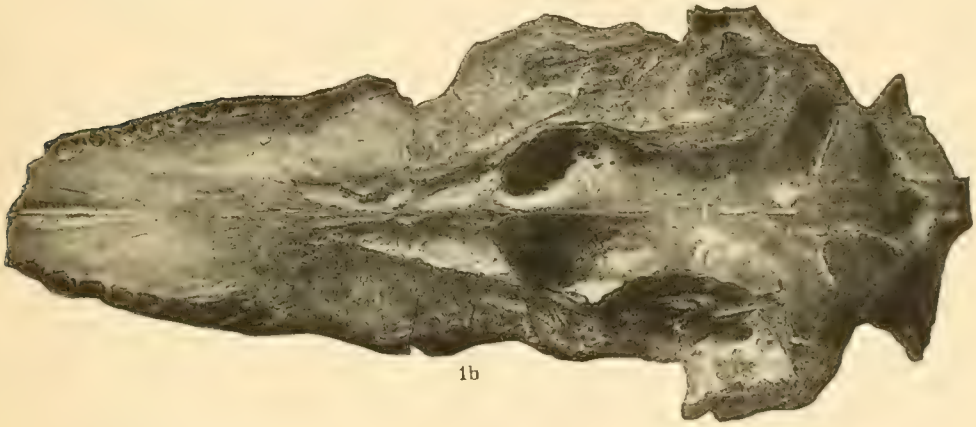
Figs. 1a-1c. LOPHIOCETUS CALVERTENSIS (Harlan) 26

1a. Lateral view of skull. × ⅓
1b. Lower view of skull. × ¼
1c. Upper view of skull. × ¼
(after Harlan).

1a



1b

1c

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PLATE XVII.

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Figs. 1, 2. DELPHINODON MENTO Cope 28

1. Anterior tooth. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅔

2. Anterior tooth. Same locality and collection. × ⅔

Figs. 3-5. DELPHINODON LEIDYI Hay 29

3. Anterior tooth. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅔

4. Anterior tooth. Same locality and collection. × ⅔

5. Anterior tooth. Virginia. Acad. Nat. Sci., Phila. × ⅔

= mediallondrens

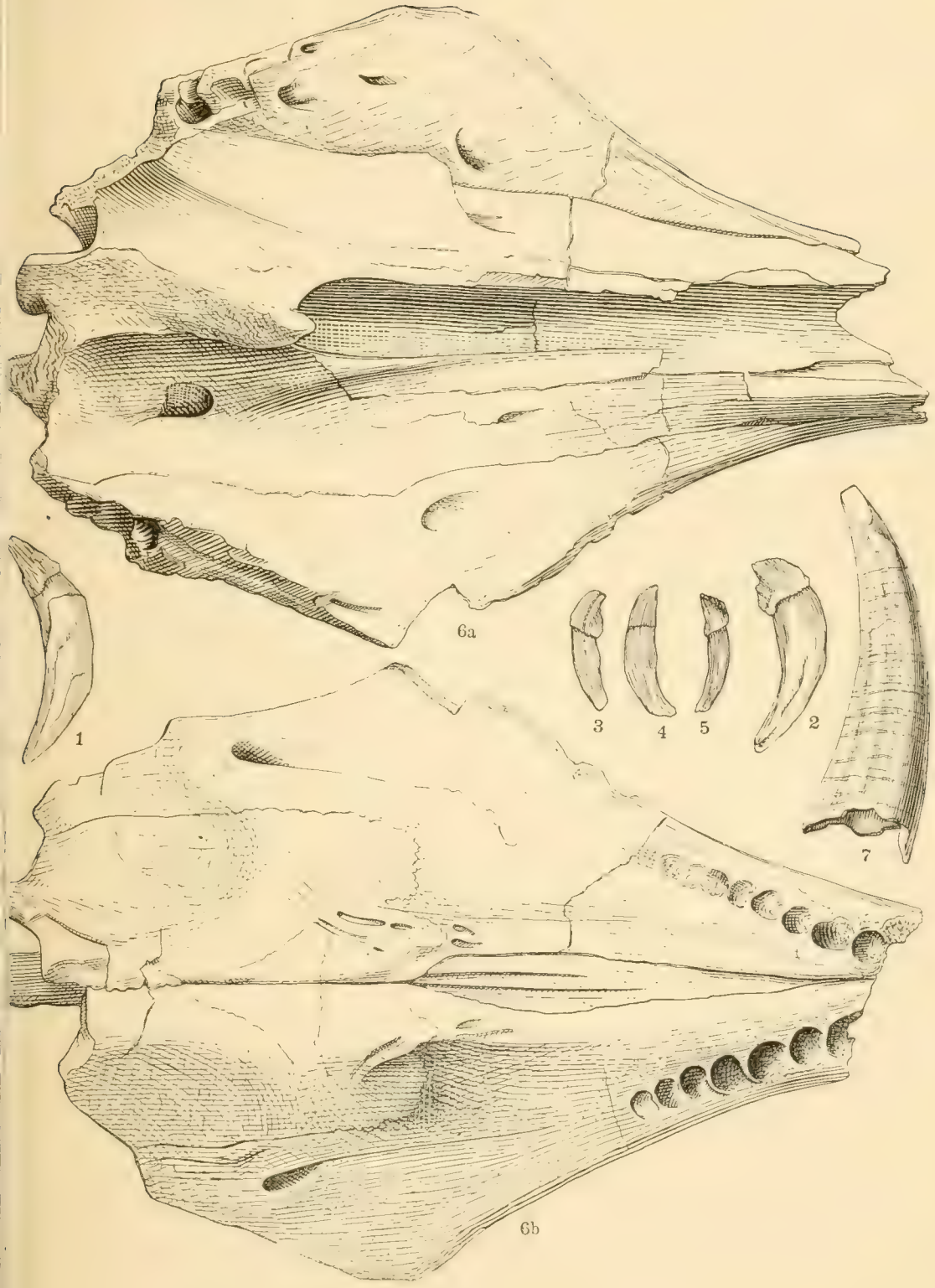
Figs. 6a, 6b. HYPOCETUS ATLANTICUS (Cope) 30

6a. Upper view of skull. Drum Point. Johns Hopkins University. < ⅙

6b. Lower view of the same skull. × ⅙

Fig. 7. ORYCTEROCETUS CROCODELINUS (?) Cope 32

7. Anterior tooth. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.



MAMMALIA.

PLATE XVIII.

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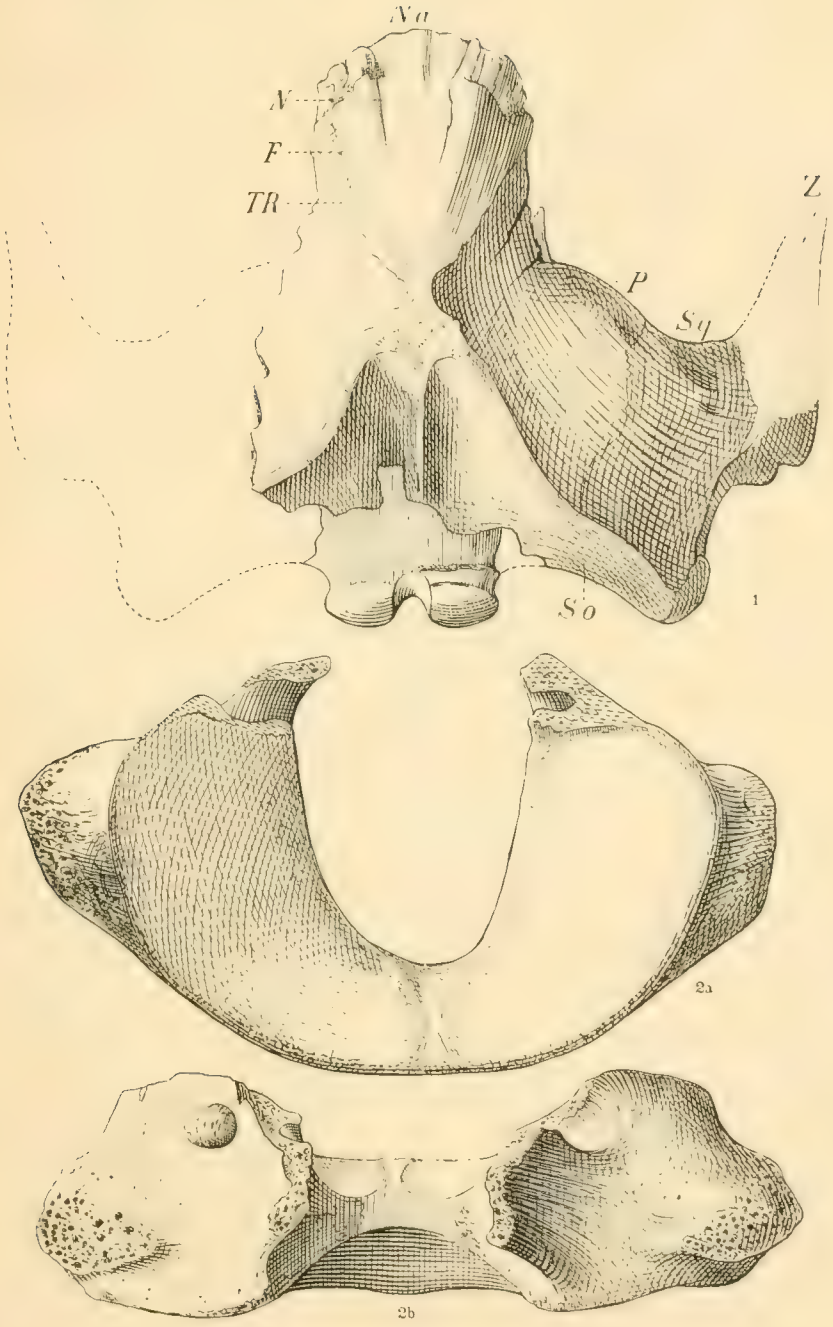
Figs. 1-2b. METOPOCETUS DURINASUS Cope 36

1. Upper view of skull. Near the mouth of the Potomac River. Museum of the Woman's College of Baltimore. × 1/6

So., Supraoccipital bone; *Sq.*, Squamosal; *Z.*, Zyzmatic; *P.*, Parietal; *F.*, Frontal; *N.*, Nasal; *Na.*, External nares; *T. R.*, Temporal Ridge.

2a. Anterior view of atlas vertebra. Same locality and collection. × ½

2b. Upper view of the same specimen. × ½



MAMMALIA.

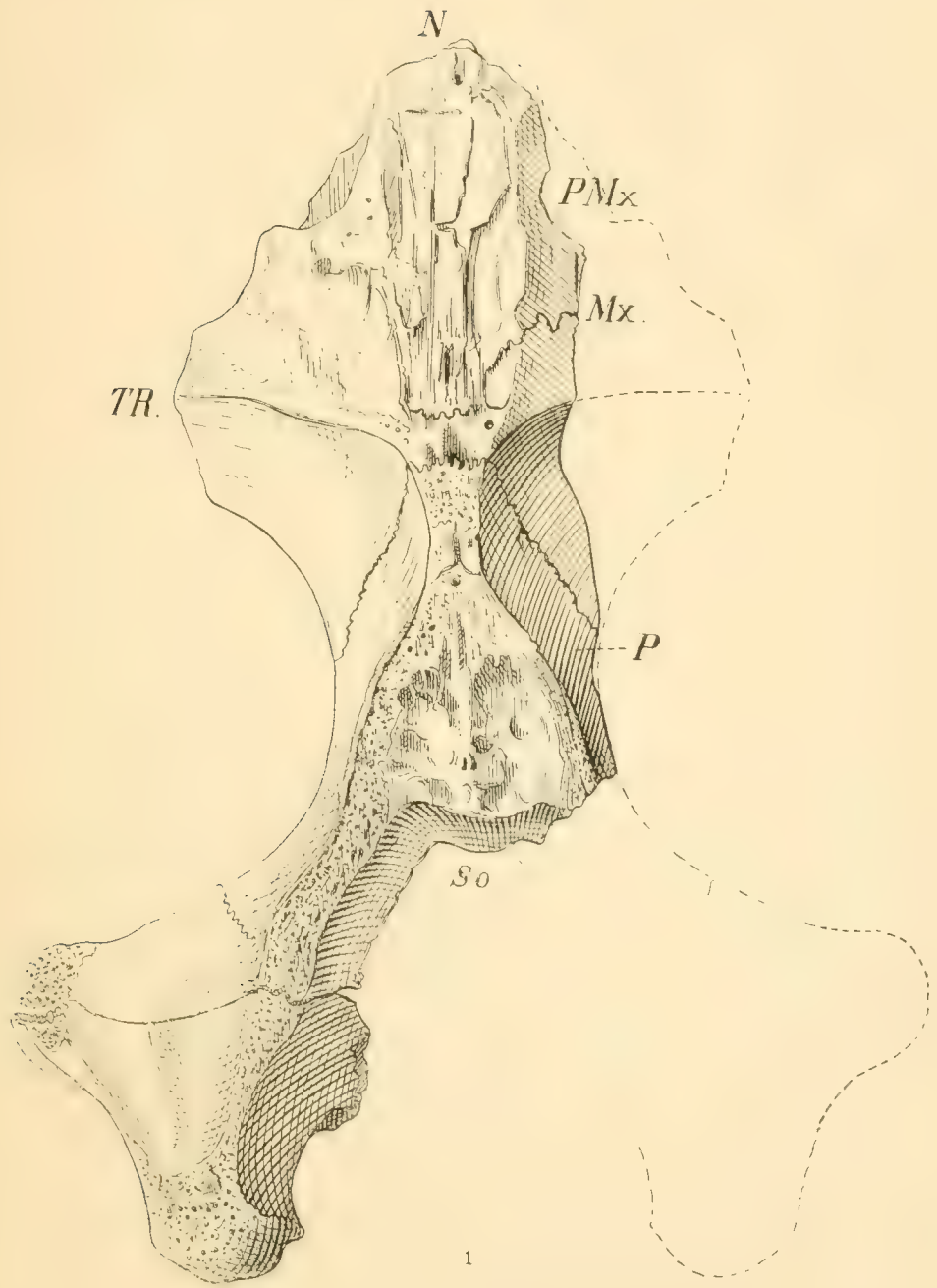
PLATE XIX.

PAGE

Fig. 1. CEPHALOTROPIS CORONATUS Cope 39

1. Upper view of skull. Johns Hopkins University. × ⅓

So., Supraoccipital bone; *P.*, Parietal; *N.*, Nasal; *Mx.*, Maxillary; *Pmx.*, Premaxillary; *T. R.*, Temporal Ridge.



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MAMMALIA.

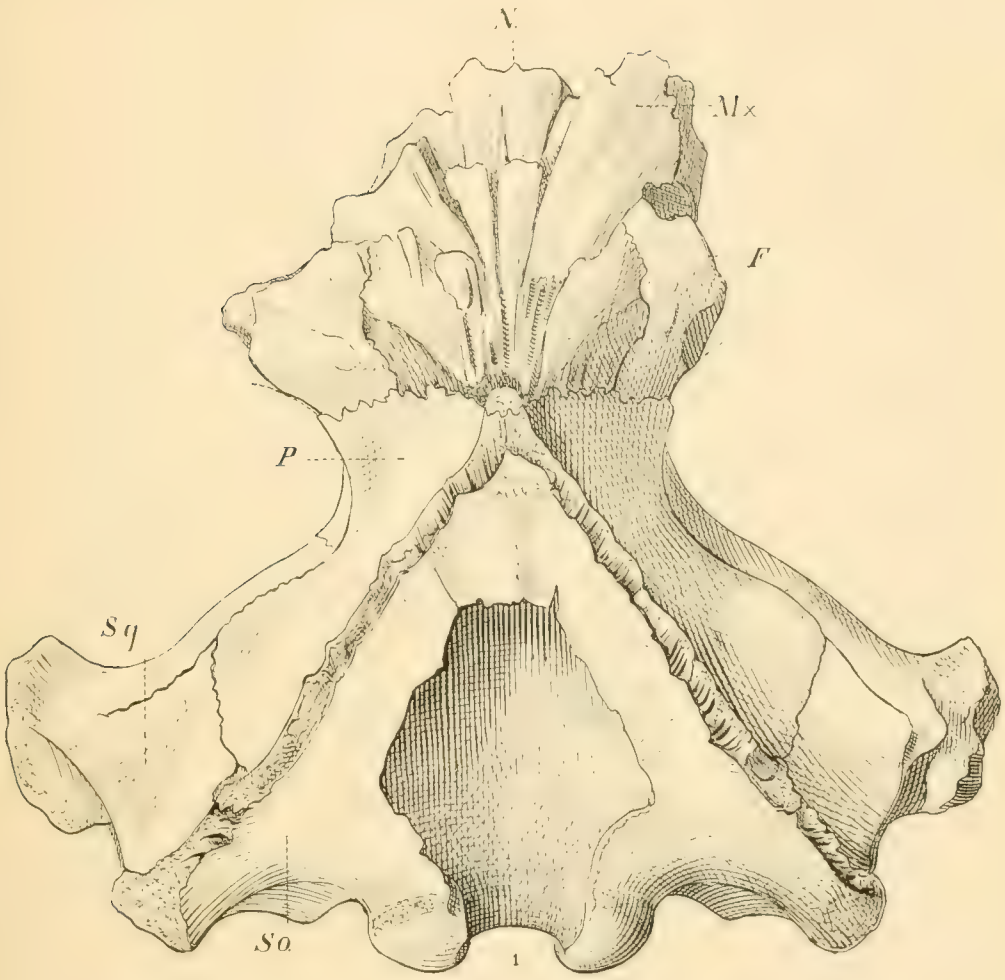
PLATE XX.

PAGE

Fig. 1. CETEOTHERIUM MEGALOPHYSUM Cope..... 41

1. Upper view of skull. Cove Point. Johns Hopkins University. × ¼

So., Supraoccipital bone; *Sq.*, Squamosal; *P.*, Parietal; *F.*, Frontal; *N.*, Nasal; *Mx.*, Maxillary.



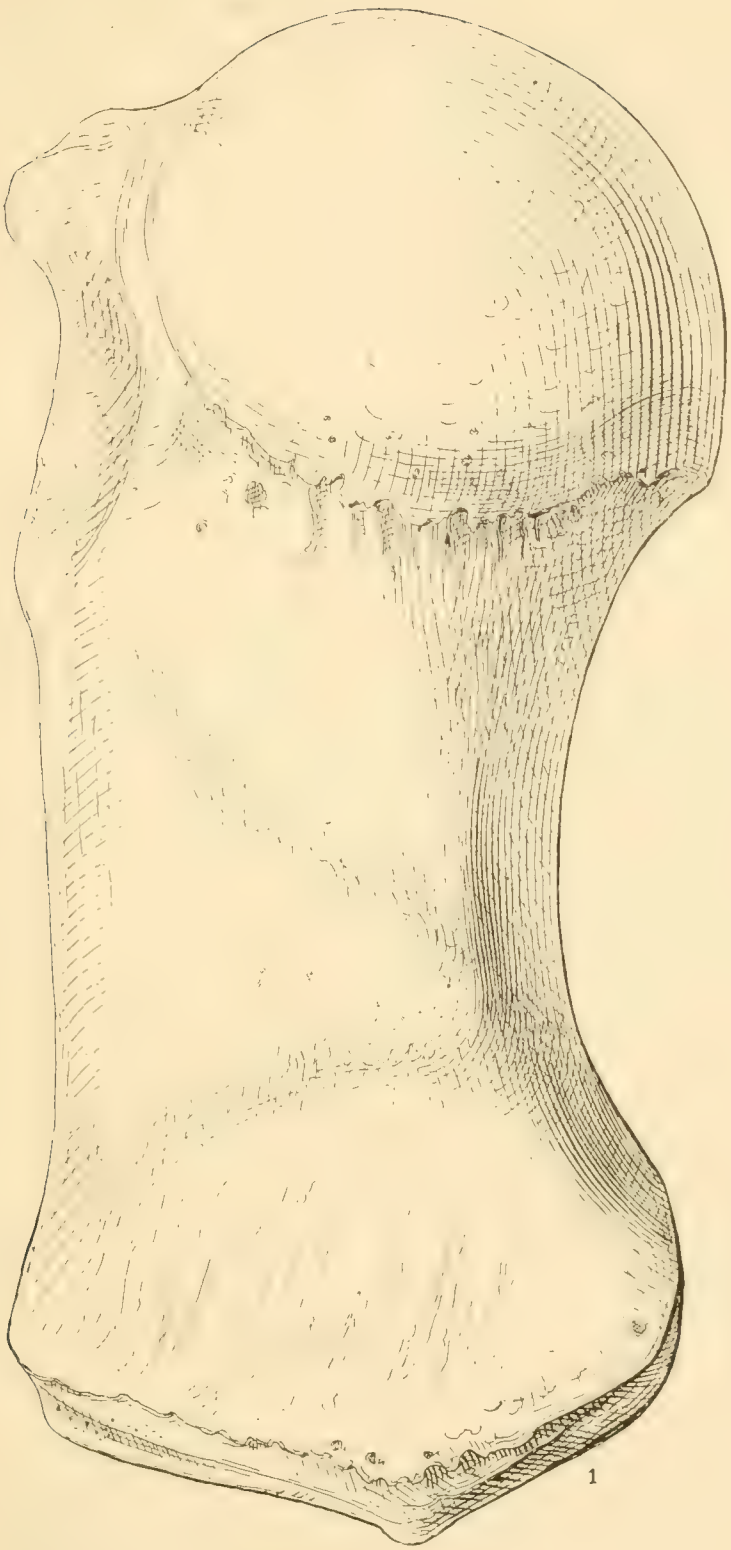
MAMMALIA.

PLATE XXI.

PAGE

Fig. 1. CETOTHERIUM CEPHALUM Cope 44

1. Humerus of right side. Shore of Chesapeake Bay. Johns Hopkins University.



MAMMALIA.

PLATE XXII.

PAGE

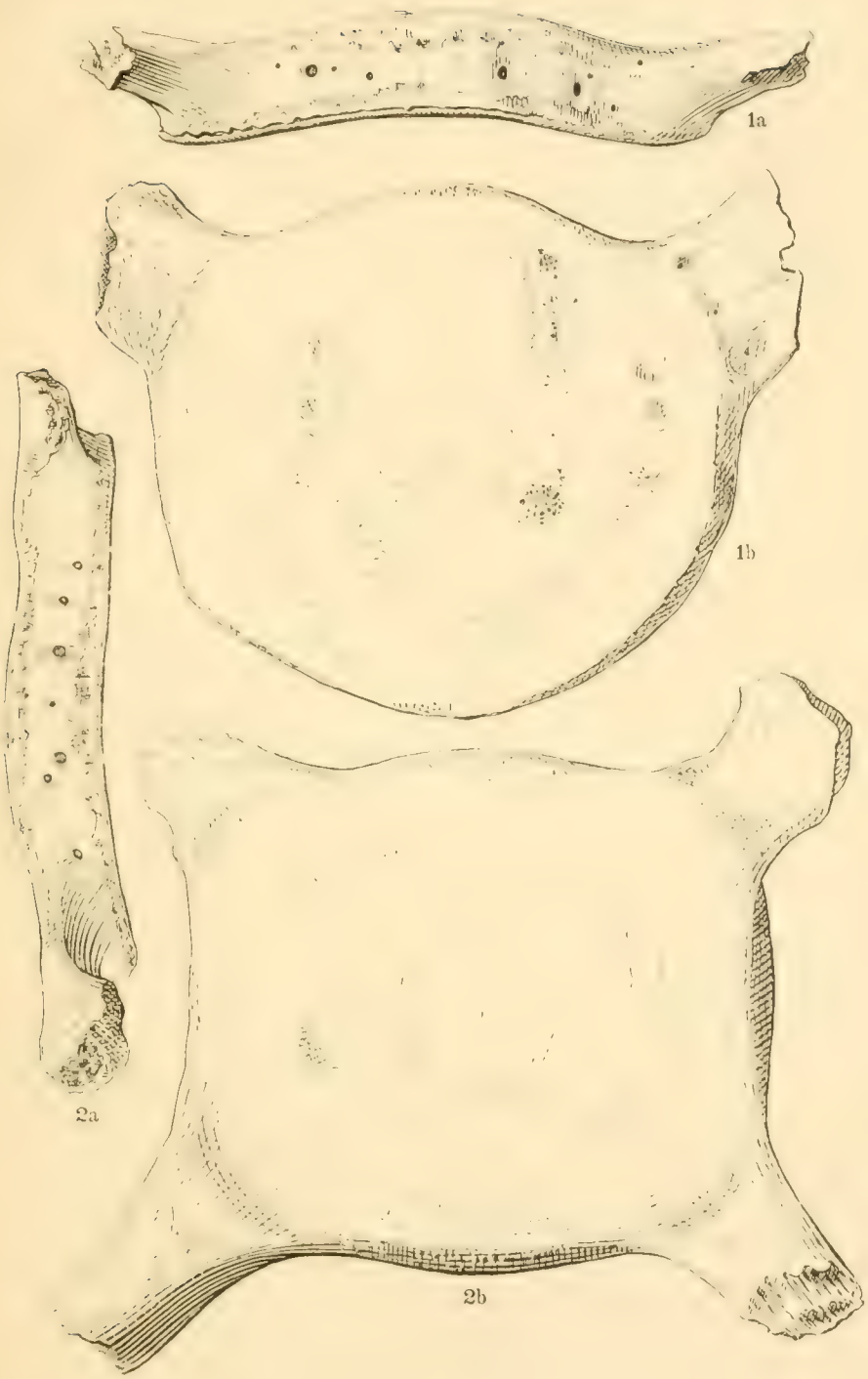
Figs. 1a-2b. CETOTHERIUM CEPHALUM Cope 44

1a. Vertebra. Charles County near the Patuxent River. Acad. Nat. Sci., Phila. × ⅔

1b. Another view of the same vertebra. × ⅔

2a. Another vertebra. Same locality and collection. × ⅔

2b. Another view of the same vertebra. × ⅔



MAMMALIA.

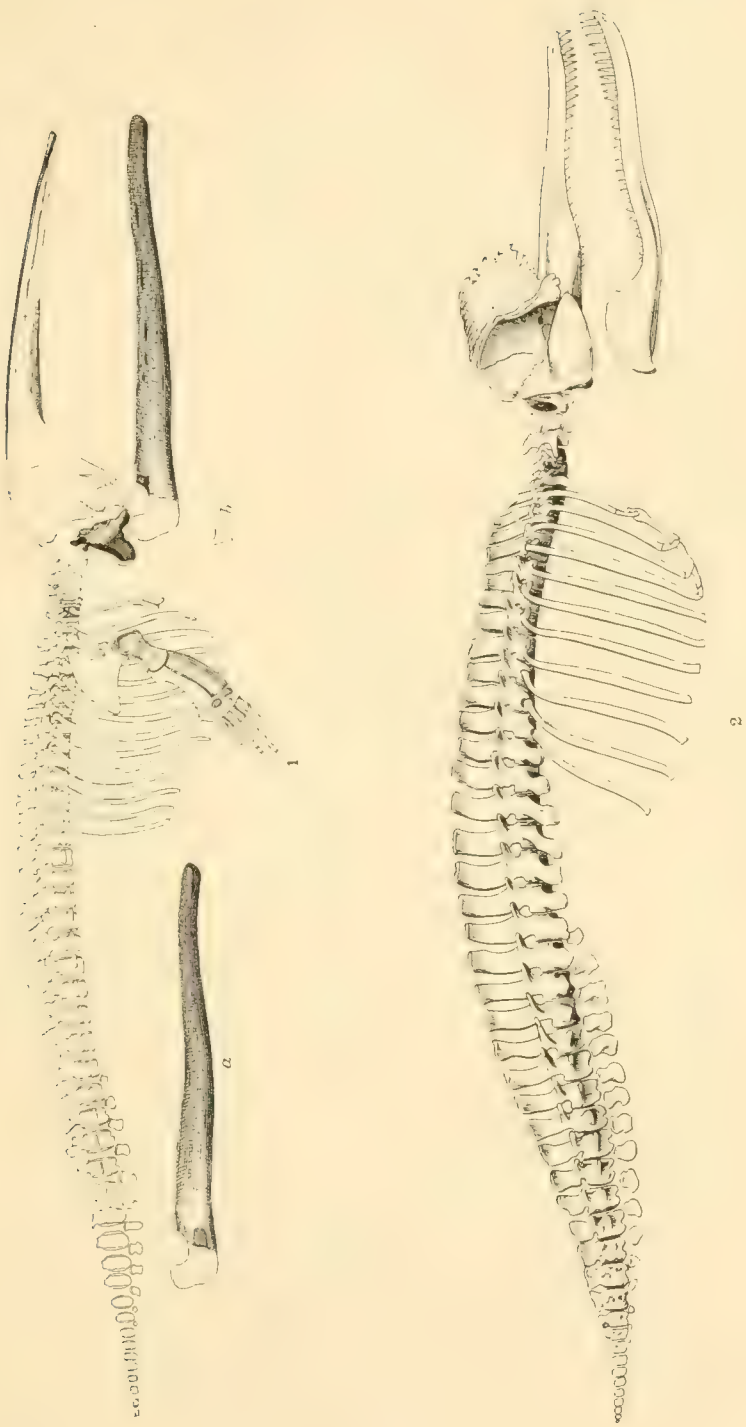
PLATE XXIII.

PAGE

Figs. 1, 2. Cetotherium cephalum Cope 44

1. Restoration, one-fiftieth natural size. The shaded portions are the actual specimen of one individual. Charles County near the Patuxent River, now in the Academy of Natural Sciences of Philadelphia. (After Cope, Amer. Nat., Vol. XXIV, Pl. XXII.)

Fig. 2. Skeleton of Plalarusla, minus the fore limbs..... 44



MAMMALIA.

PLATE XXIV.

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Figs. 1a, 1b. ULIAS MORATUS Cope 50

1a. Outer view of lower jaw. Miocene of Maryland or Virginia. Johns Hopkins University. × ⅛

1b. Upper view of the same specimen.

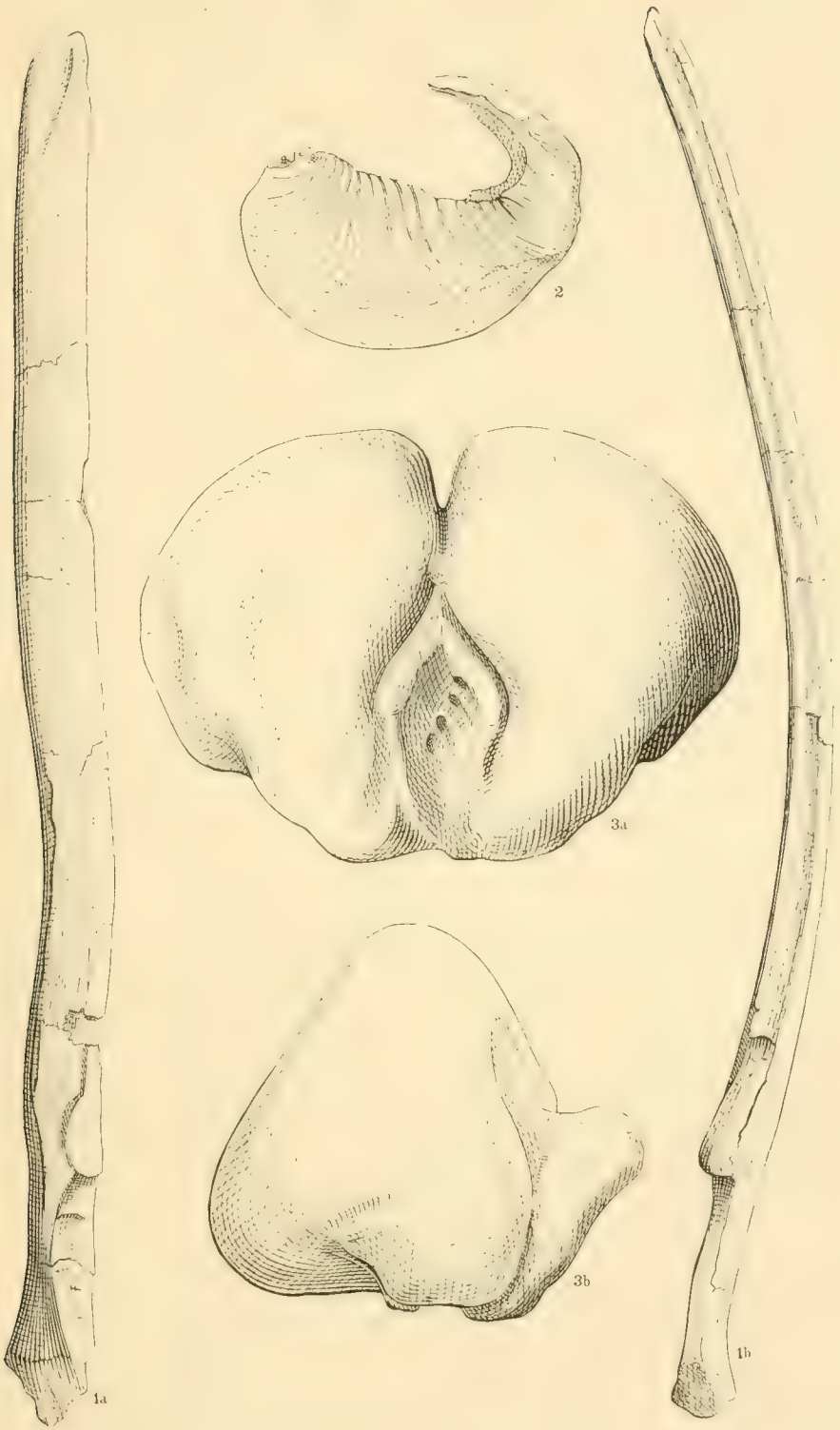
Fig. 2. BALAENOPTERA SURSIPLANA Cope 54

2. Tympanic bone. Miocene of Maryland or Virginia. Johns Hopkins University. × ½

Figs. 3a, 3b. NATURAL CAST OF A CETACEAN BRAIN CAVITY..... 56

3a. View from before. × ½

3b. View of the same specimen from the side. × ½



MAMMALIA.

PLATE XXV.

PAGE

Lettering: *E. G.*, External gingival canal; *I. G.*, Internal gingival canal; *G. G.*, Gingival groove; *D. C.*, Dental canal.

Fig. 1. CETOTHERIUM PARVUM Trouessart 44

1. Section of left mandibular ramus. After Cope, Proc. Amer. Philos. Soc., Vol. XXXIV, Pl. VI, Fig. 6. × ⅓

Fig. 2. TRETULIAS BUCCATUS Cope 52

2. Section of left mandibular ramus. After Cope, Proc. Amer. Philos. Soc., Vol. XXXIV, Pl. VI, Fig. 2. × ⅓

Fig. 3. SIPHONOCETUS EXPANSUS Cope 45

3. Section of left mandibular ramus. After Cope, Proc. Amer. Philos. Soc., Vol. XXXIV, Pl. VI, Fig. 5. × ⅓

Fig. 4. SIPHONOCETUS CLARKEANUS Cope 47

4. Section of left mandibular ramus. After Cope, Proc. Amer. Philos. Soc., Vol. XXXIV, Pl. VI, Fig. 4. × ⅓

Fig. 5. SIPHONOCETUS PRISCUS Leidy 46

5. Section of left mandibular ramus. After Cope, Proc. Amer. Philos. Soc., Vol. XXXIV, Pl. VI, Fig. 3. × ⅓

Fig. 6. ULIAS MORATUS Cope 50

6. Section of left mandibular ramus. After Cope, Proc. Amer. Philos. Soc., Vol. XXXIV, Pl. VI, Fig. 1. × ⅓

Fig. 7. CETOTHERIUM POLYPORUM Cope 47

7. Section of left mandibular ramus. After Cope, Proc. Amer. Philos. Soc., Vol. XXXIV, Pl. VI, Fig. 7. × ⅓

Fig. 8. CETOTHERIUM CEPHALUM Cope 44

8. Section of mandibular ramus from Maryland, distal of the middle. After Cope, Proc. Amer. Philos. Soc., Vol. XXXV, Pl. XII, Fig. 3. × ⅓

Fig. 9. RHEGNOPSIS PALAEATLANTICUS Leidy 45, 46

9. Section of mandibular ramus from Virginia. After Cope, Proc. Amer. Philos. Soc., Vol. XXXV, Pl. XII, Fig. 5. × ⅓

Fig. 10. CETOTHERIUM LEPTOCENTRUM Cope 47

10. Section of mandibular ramus from Virginia. After Cope, Proc. Amer. Philos. Soc., Vol. XXXV, Pl. XII, Fig. 1. × ⅓

Fig. 11. CETOTHERIUM DAVIDSONII Cope 34

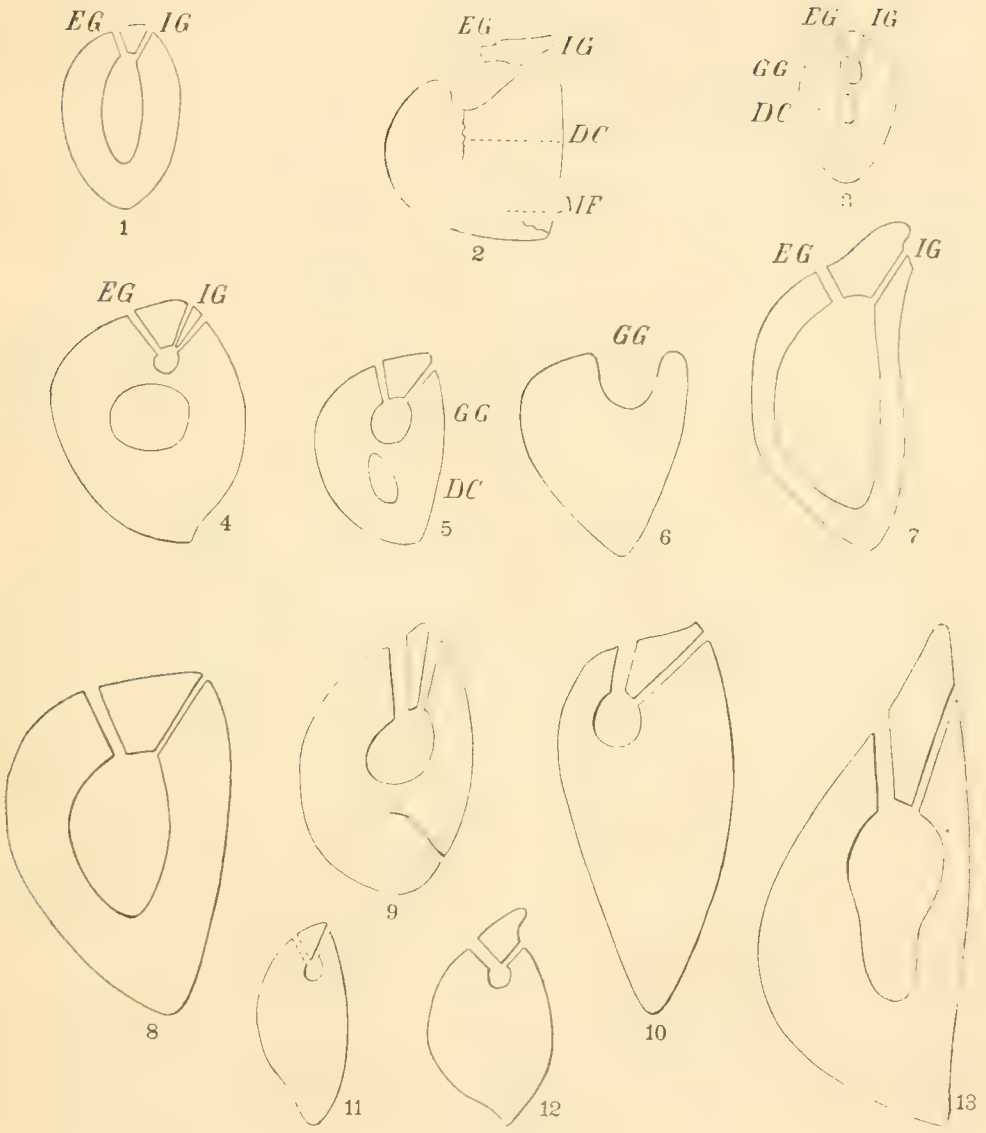
11. Section of mandibular ramus from California. After Cope, Proc. Amer. Philos. Soc., Vol. XXXV, Pl. XII, Fig. 4. × ⅓

Fig. 12. MESOCETUS SIPHUNCULUS Cope 34

12. Section of mandibular ramus from Virginia. After Cope, Proc. Amer. Philos. Soc., Vol. XXXV, Pl. XII, Fig. b.

Fig. 13. CETOTHERIUM CEPHALUM Cope 44

13. Section of mandibular ramus represented in Fig. 8, proximal of the middle. After Cope, Proc. Amer. Philos. Soc., Vol. XXXV, Pl. XII, Fig. 2. × ⅓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MAMMALIA.

PLATE XXVI.

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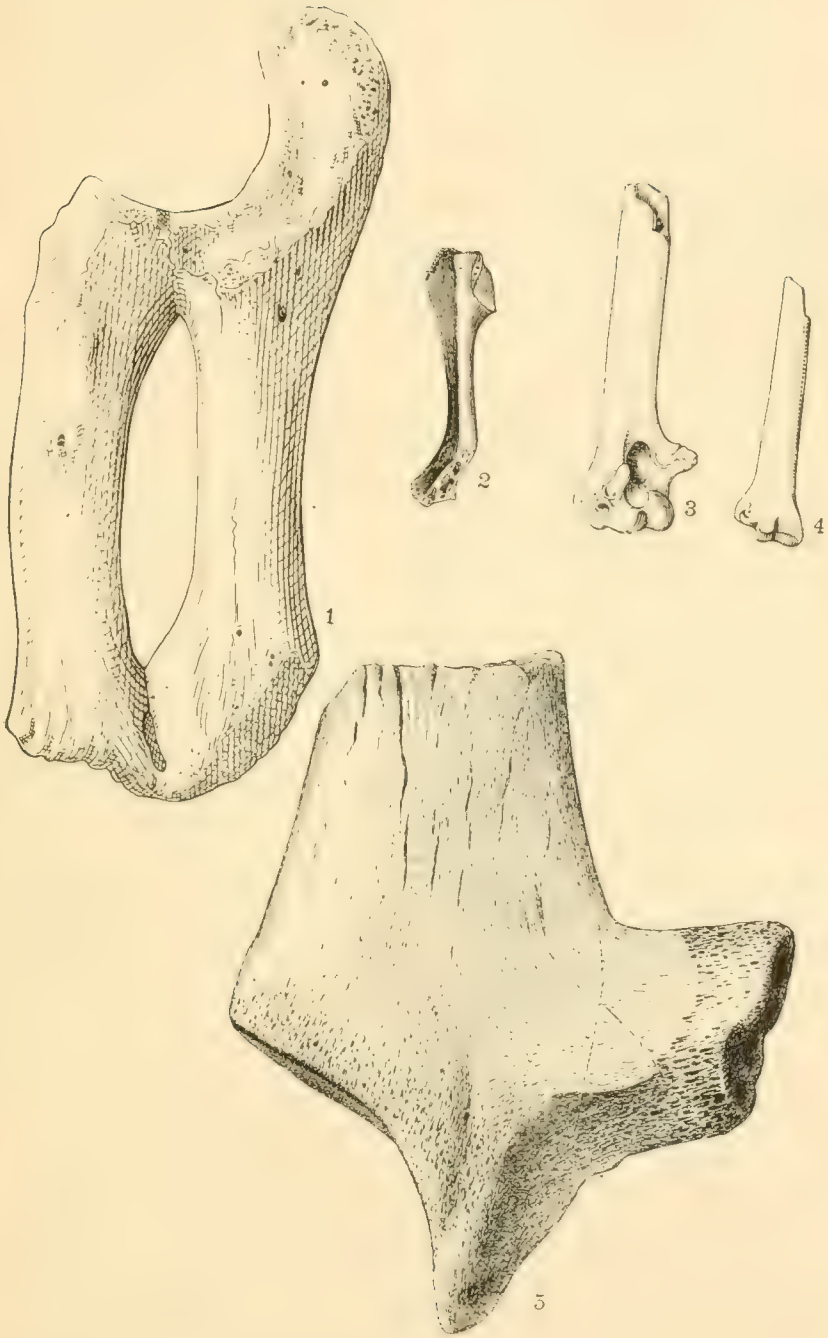
Fig. 1. Trichechus giganteus (?) (De Kay) 56
1. Radius and ulna. Fairhaven. × ⅔

Fig. 2. Sula loxostyla Cope 58
2. Coracoid. Calvert Cliffs. American Museum of Natural History. × ⅔

Figs. 3, 4. Puffinus conradi Marsh 60
3. Distal portion of right humerus. Miocene of Maryland. Acad. Nat. Sci., Phila.
4. Distal portion of right ulna. Same locality and collection.

Fig. 5. Chelone sp 64
5. Proximal portion of scapula. Plum Point. × ⅔



MAMMALIA, AVES AND REPTILIA.

PLATE XXVII.

PAGE

Figs. 1, 2. THECACHAMPSA (?) SERICODON Cope 65

1. Tooth. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.
2. Tooth. Same locality and collection.

Figs. 3-5. THECACHAMPSA (?) SICARIA Cope 66

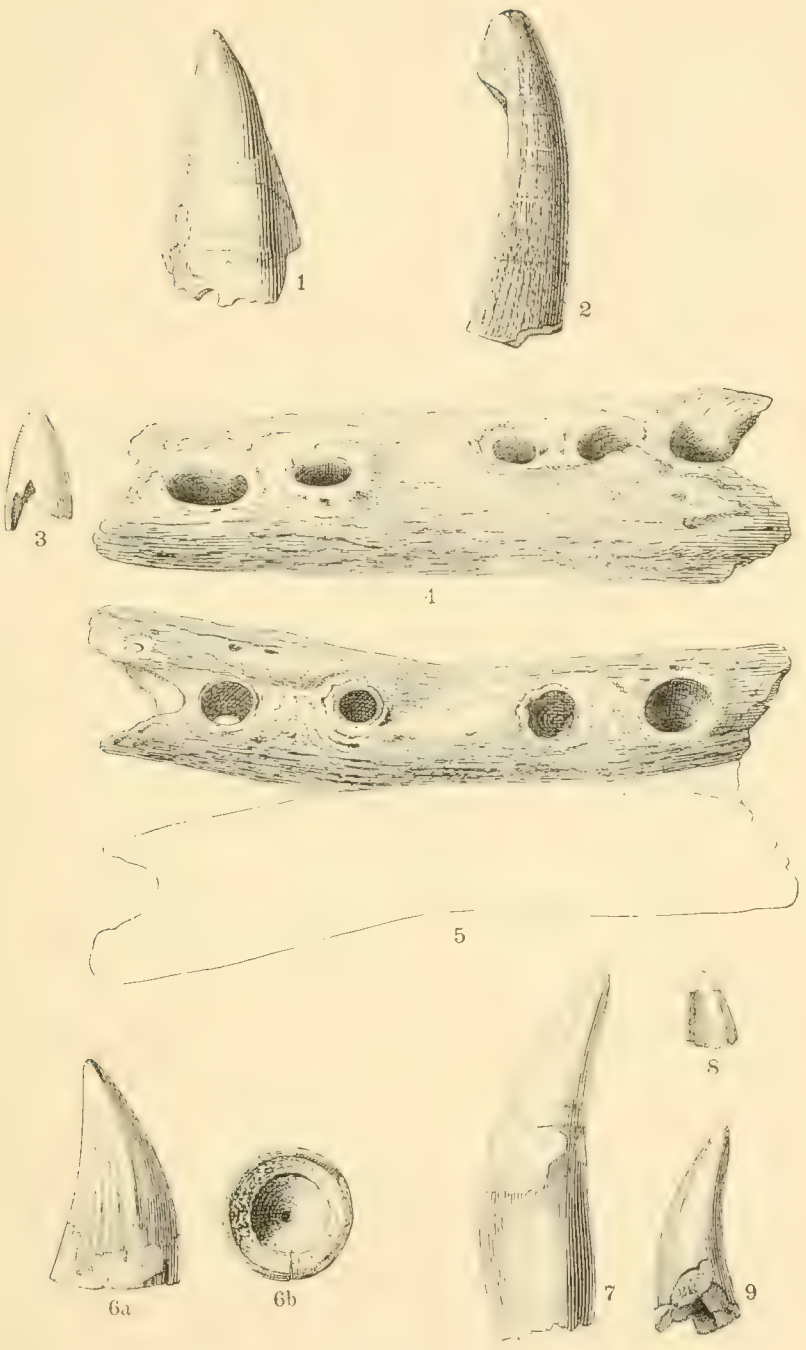
3. Crown of a tooth. (After Cope.) × ⅔
4. Portion of lower jaw. (After Cope.) × ⅔
5. Another view of the same. (After Cope.) × ⅔

Figs. 6a, 6b. THECACHAMPSA (?) CONTUSOR Cope 66

6a. Lateral view of tooth. Charles County near the Patuxent River.
6b. Basal view of the same specimen.

Figs. 7-9. THECACHAMPSA (?) ANTIQUA (Leidy) 67

7. Tooth. "High cliffs of the Potomac River, 40 miles above the mouth of the river in Westmoreland County, Virginia." Acad. Nat. Sci., Phila. × ⅔
8. Another tooth from the same locality and collection. × ⅔
9. Another tooth from the same locality and collection. × ⅔



REPTILIA.

PLATE XXVIII.

PAGE

Figs. 1a, 1b. SQUATINA OCCIDENTALIS n. sp. 71

1a. Outer face of tooth (type specimen) showing downward prolongation of the enamel below the base of crown. Plum Point. × 4/3

1b. Inner face of the same specimen.

Fig. 2. RAJA (?) DUX Cope 72

2. Superior aspect of a detached and considerably abraded dermal tubercle. (Type specimen.) Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

Figs. 3a, 3b. MYLIOBATIS GIGAS Cope 73

3a. Oral surface of the upper dental pavement of an adult individual, the anterior end (shown uppermost in the figure) fractured and imperfect. (Type specimen.) Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

3b. Transverse view of the same specimen, taken across its posterior end (at bottom of Fig. 3a).

1a

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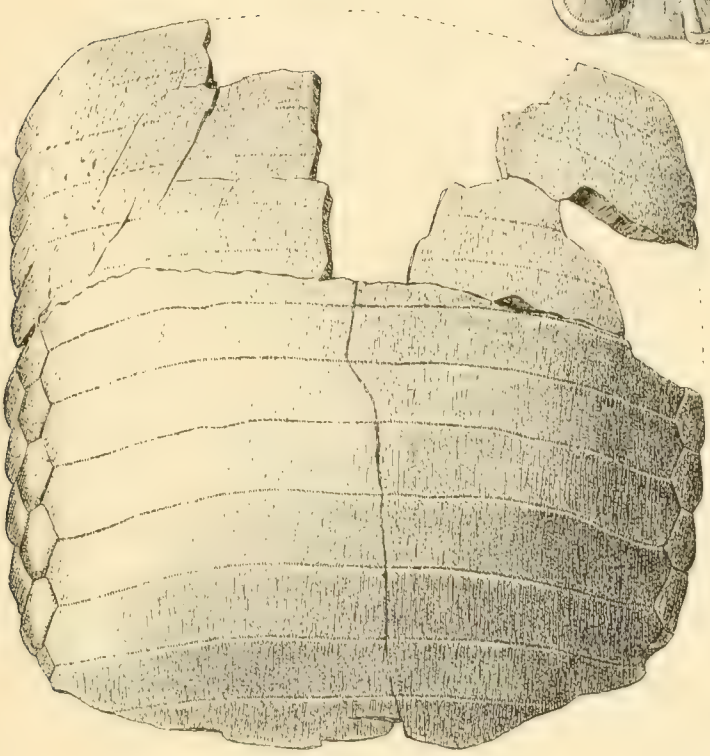

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PISCES.

PLATE XXIX.

PAGE

Figs. 1a, 1b. MYLIOBATIS GIGAS Cope 73

1a. Oral surface of lower dental pavement, somewhat worn, and showing line of longitudinal striae or fissures of the ganodentine radiating backwards and outwards. Charles County near the Patuxent River. Type of the so-called "*M. vicomicanus*." Acad. Nat. Sci., Phila.

1b. Transverse view of the same specimen at its posterior end (across the bottom of Fig. 1a).

Figs. 2a, 2b. MYLIOBATIS PACHYODON Cope 75

2a. Oral surface of imperfect lower dental pavement, the anterior end shown uppermost. (Type specimen.) Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

2b. Transverse view of the same specimen.

Fig. 3. MYLIOBATIS FRANGENS n. sp 75

3. Oral surface of imperfect lower dental pavement, somewhat worn, and showing curved outline of the anterior depression due to wear. (Type specimen.) Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

Fig. 4. MYLIOBATIS OR TRYGON (?) sp. 92

4. Portion of large caudal spine of an eagle or sting-ray. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

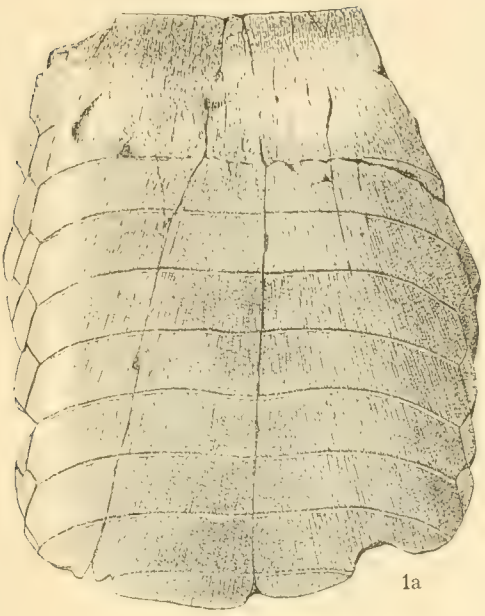
Fig. 5. AËTOBATIS ARCUATUS Agassiz 76

5. Inferior aspect of fragmentary tooth. St. Mary's River.

Figs. 6a, 6b. NOTIDANUS PRIMIGENIUS Agassiz..... 77

6a. Inner aspect of tooth, the root much worn away. Plum Point.

6b. Outer aspect of the same specimen.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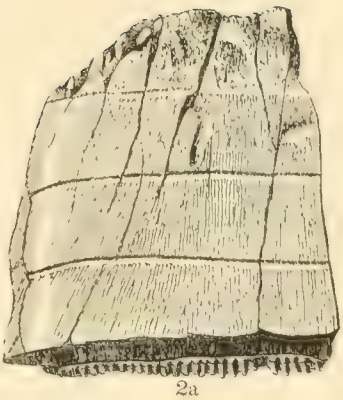
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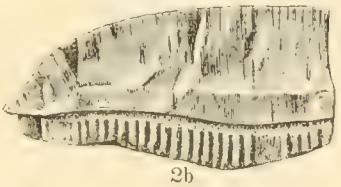
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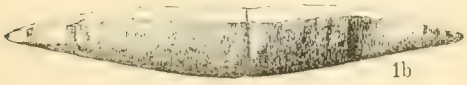
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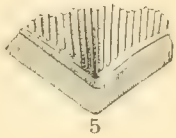
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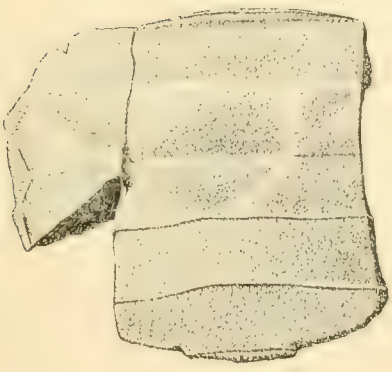
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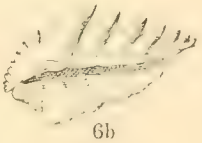
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PLATE XXX.

PAGE

Figs. 1a, 1b. ODONTASPIS CUSPIDATA (Agassiz) 78

1a. Outer face of a tooth showing a rudimentary second pair of lateral denticles. St. Mary's River. × 4/3

1b. Inner face of the same specimen. × 4/3

Figs. 2a, 2b, 3. ODONTASPIS ELEGANS (Agassiz) 79

2a. Outer face of a small tooth. Plum Point. × 4/3

2b. Inner face of the same specimen. × 4/3

3. Outer face of a somewhat worn tooth, the lateral denticles broken away. Plum Point.

Fig. 4. OXYRHINA DESORII Agassiz 79

4. Inner face of a moderate-sized tooth. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

Figs. 5a-6c. OXYRHINA HASTALIS Agassiz 80

5a. Inner face of a medium-sized and somewhat worn specimen. Flag Pond.

5b. Outer face of the same specimen.

6a. Outer face of a large-sized lateral tooth. Jones Wharf.

6b. Profile of the same specimen.

6c. Inner face of the same specimen.

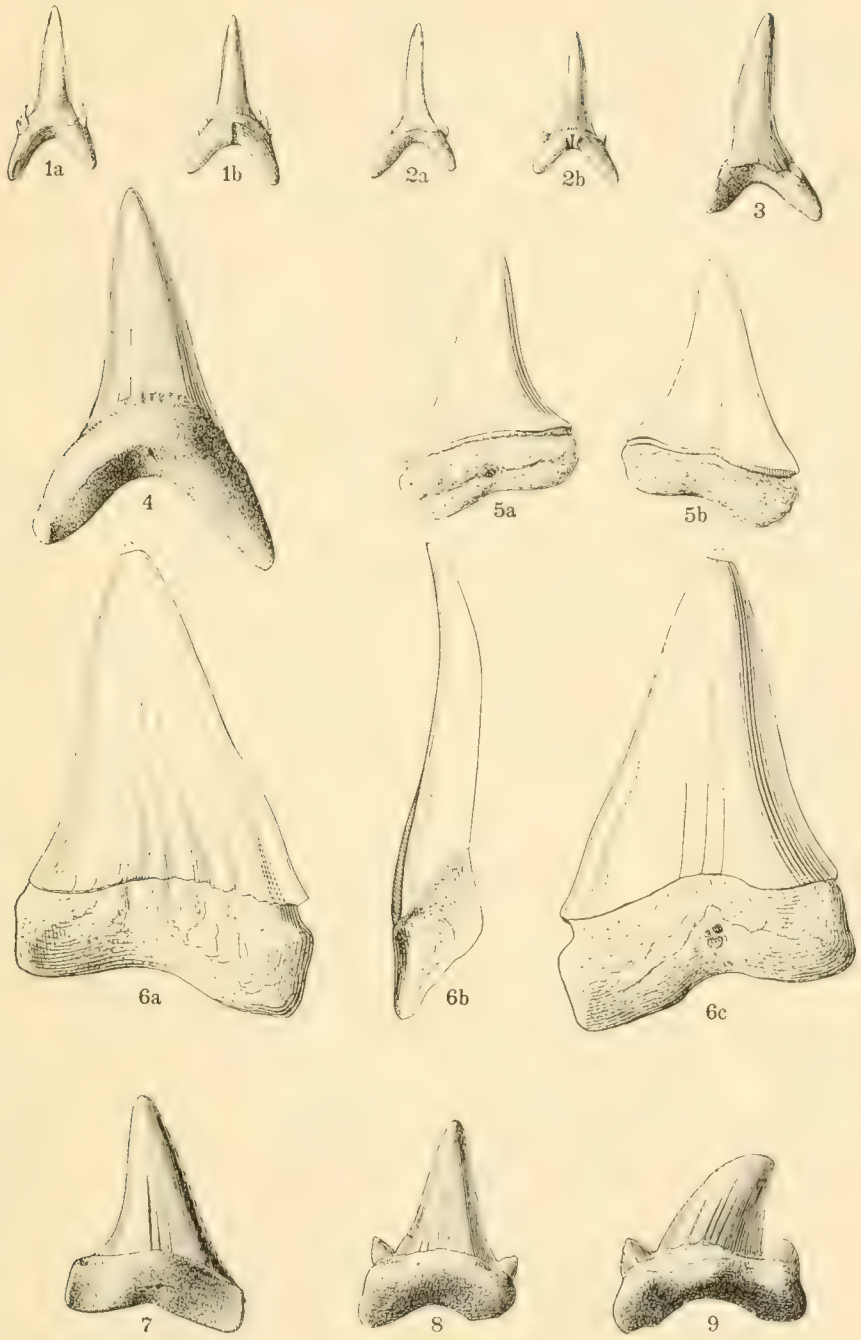
Fig. 7. OXYRHINA SILLIMANI Gibbes 81

7. Outer face of an average-sized tooth. Fairhaven.

Figs. 8, 9. OTODUS OBLIQUUS Agassiz 82

8. Inner face of a small-sized specimen with erect crown. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

9. Inner face of a small-sized lateral tooth with oblique crown. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.



PISCES.

PLATE XXXI.

PAGE

Figs. 1a-3. CARCHARODON MEGALODON (Charlesworth) 82

1a. Inner face of an anterior tooth with slender, erect crown. Plum Point.

1b. Profile of the same specimen.

1c. Outer face of the same specimen.

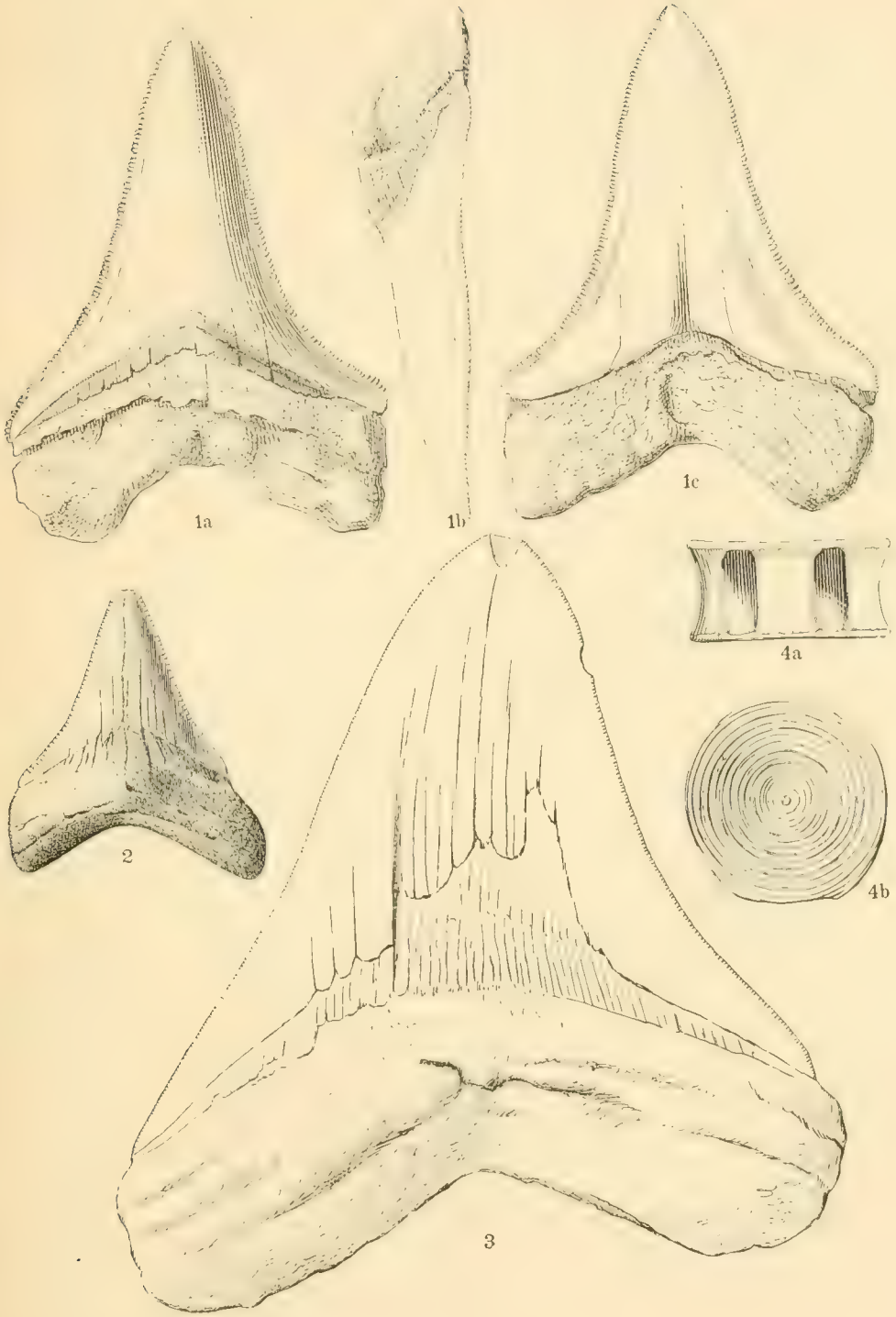
2. Inner face of a small-sized, slightly worn specimen within thin, flat crown of the variety styled "*C. productus* Agassiz." Plum Point.

3. Inner face of a large-sized lateral tooth. Fairhaven.

Figs. 4a, 4b. VERTEBRAL CENTRUM OF CARCHARODON sp. 82

4a. Vertebral face. Plum Point.

4b. Hæmal aspect of the same specimen.



PISCES.

PLATE XXXII.

PAGE

Fig. 1. CARCHARIAS (PRIONODON) EGERTONI (Agassiz) 84

1. Inner face of a well-preserved specimen of average size. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

Fig. 2. CARCHARIAS LAEVISSIMUS (Cope) 84

2. Inner face of a tooth. Fairhaven.

Figs. 3-5. CARCHARIAS COLLATA n. sp. (Ex. Cope MS) 85

3a. Outer face of a posterior tooth with expanded root. (Type specimen.) Charles County near the Patuxent River. Acad. Nat. Sci., Phila.
3b. Inner face of the same specimen.
4a. Outer face of a large-sized tooth with erect crown and sharp lateral carinæ. (Type specimen.) Acad. Nat. Sci., Phila.
4b. Inner face of the same specimen.
5. Inner face of an average-sized tooth with prominent root. (Type specimen.) Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

Figs. 6, 7. CARCHARIAS MAGNA (Cope) 86

6a. Outer face of a specimen with narrow root. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.
6b. Inner face of the same specimen.
7a. Outer face of a large-sized lateral tooth, with oblique crown and faint crimping of its basal edges. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.
7b. Inner face of the same specimen.

Fig. 8. CARCHARIAS INCIDENS n. sp. 87

8. Inner face of the type specimen. Chesapeake Beach.

Figs. 9a, 9b. GALEOCERDO CONTORTUS Gibbes 87

9a. Outer face of a specimen slightly above the average size. Fairhaven.
9b. Inner face of the same specimen.

Fig. 10. GALEOCERDO LATIDENS Agassiz 88

10. Inner face of an average-sized tooth. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

Fig. 11. GALEOCERDO ADUNCUS Agassiz 88

11. Inner face of an averaged-sized tooth. Plum Point.

Fig. 12. GALEOCERDO TRIQUETER n. sp. 89

12. Inner face of the type and only known specimen. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

Figs. 13, 14. HEMIPRISTIS SERRA Agassiz 90

13a. Outer face of a medium-sized anterior tooth. Popes Creek.
13b. Inner face of the same specimen.
14a. Outer face of a moderate-sized lateral tooth. Popes Creek.
14b. Profile of the same specimen.
14c. Inner face of the same specimen.

Fig. 15. SPHYRNA PRISCA Agassiz 91

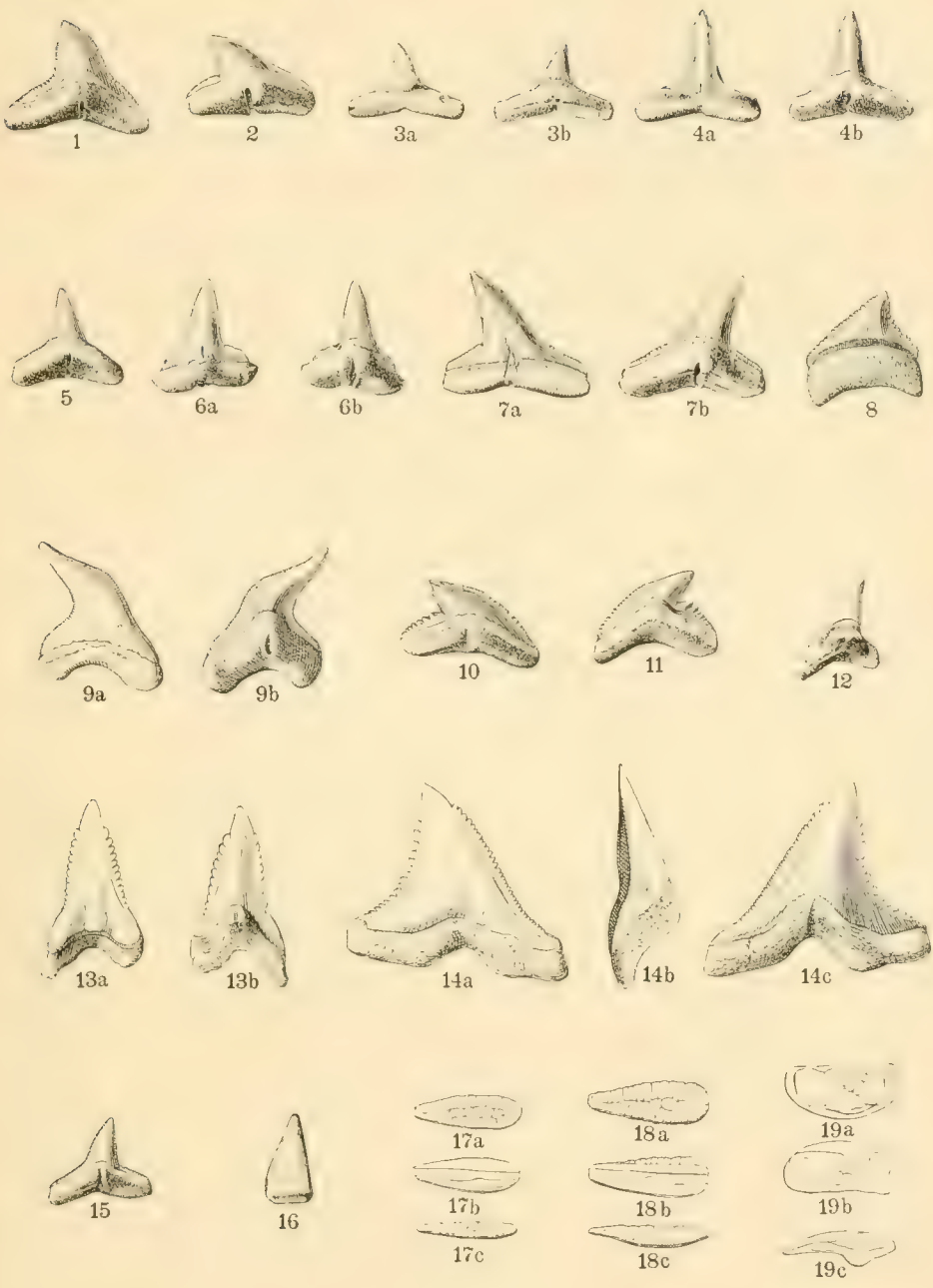
15. Inner face of a large-sized, perfectly preserved specimen. Plum Point.

Fig. 16. SPHYRÆNA SPECIOSA Leidy 92

16. Crown of fragmentary laniary tooth. Charles County near the Patuxent River. Acad. Nat. Sci., Phila.

Figs. 17-19. OTOLITES of Teleost Fishes 93

Inner, outer and side-views of otolites. St. Mary's River. × ⅔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19b
19c

PISCES.

PLATE XXXIII.

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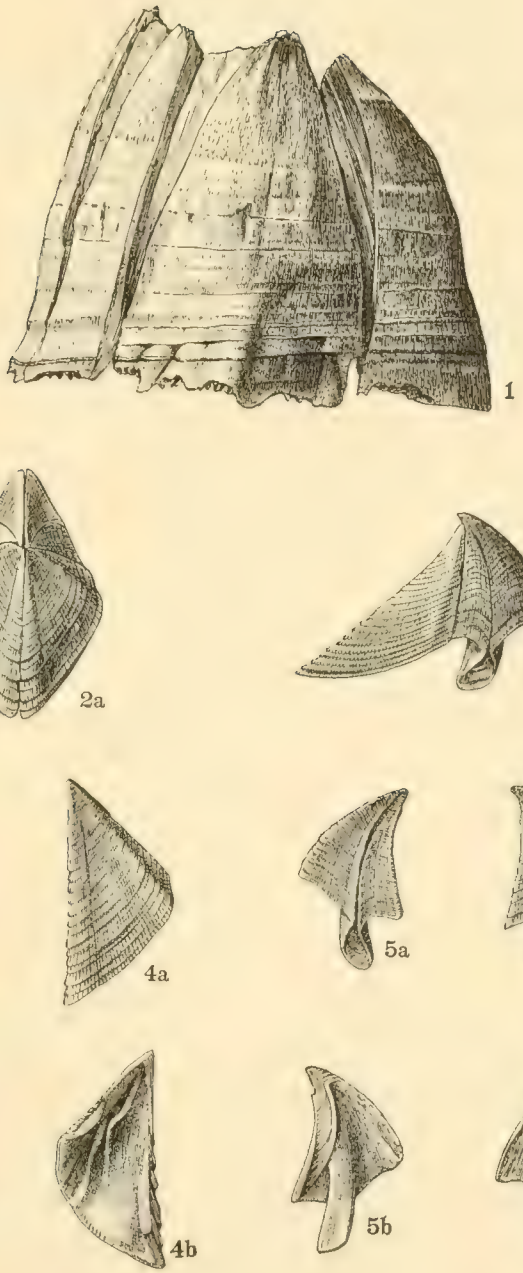
Figs. 1-6. BALANUS CONCAVUS Brown 94

1. Lateral view of large specimen. Jones Wharf.
2a. Scuta and terga. St. Mary's River.
2b. Lateral view of the same.
3a. Exterior of left scutum.
3b. Interior of the same.
4a. Interior of right scutum.
4b. Exterior of the same.
5a. Exterior of right tergum.
5b. Interior of the same.
6a. Exterior of left tergum.
6b. Interior of the same.



ARTHROPODA—CIRRIPEDIA.

PLATE XXXIV.

PAGE

Figs. 1-7. BALANUS CONCAVUS Brown 94

1. Interior of left lateral compartment of original of Plate XXXIII, Fig. 1.
2. Interior of rostrum of the same.
3. Interior of right lateral compartment of the same.
4. Interior of right carino-lateral compartment of the same.
5. Interior of carina of the same.
6. Interior of left carino-lateral compartment of the same.
7. Basis of the same.

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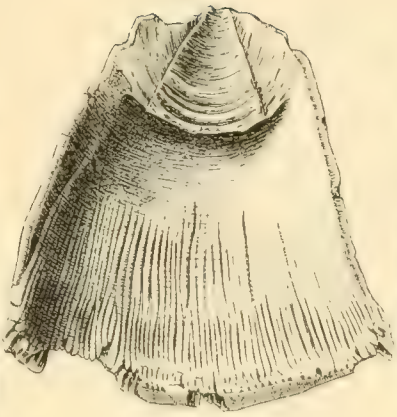

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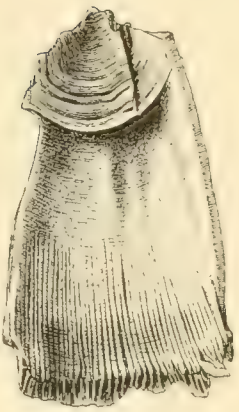

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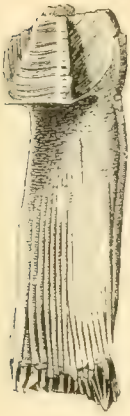

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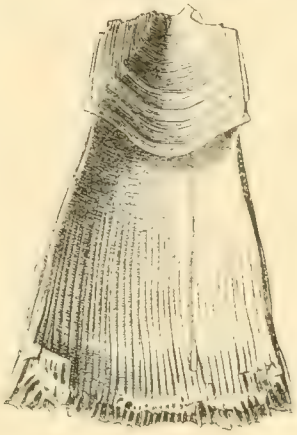

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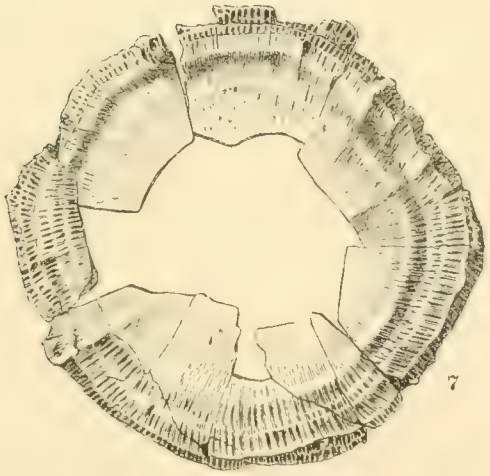

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ARTHROPODA—CIRRIPEDIA.

PLATE XXXV.

PAGE

Figs. 1-10 CYTHERE CLARKANA n. sp 98

1. Rather short left valve. Plum Point. U. S. Nat. Museum.
2. A left valve of the average length and dimensions. Same locality.
3. Unusually elongate right valve. Same locality.
4. Rather short right valve, without spines on either end. Same locality.
5. Dorsal view of a large specimen. Same.
6. Right side of entire carapace differing slightly in outline from the usual form.
7. Dorsal view of another specimen.
8. Ventral view of a specimen, broken to show overlap of edges.
9. A small and somewhat macerated left valve.
10. Interior of a short right valve.

Figs. 11-14. CYTHERE CLARKANA var. MINUSCULA n. var..... 99

11, 12. Two left valves of this variety.
13. A right valve, somewhat doubtfully referred to this variety.
14. Interior of the largest left valve seen.

Figs. 15-17. CYTHERE INÆQUIVALVIS n. sp. 101

15. The left or larger valve. Plum Point.
16. The smaller and quite differently shaped right valve. Same locality.
17. Interior of another right valve.

Figs. 18, 19. CYTHERE PLEBEIA var. MODICA n. var..... 103

18, 19. Two left valves of this variety differing somewhat in outline. Plum Point.

Figs. 20-29. CYTHERE PLEBEIA n. sp. 102

20. Ventral view of two valves partly opened.
21. Right side of an entire carapace of average form and dimensions, showing inequality of valves.
22. Left valve of the usual form.
23-25. Three entire specimens figured to show respectively dorsal, ventral and dorsal edges.
26, 27. Two views of an unusually wide left valve.
28. A similar left valve having a well developed border along the anterior edge.
29. Interior of another left valve like Fig. 28.

Figs. 30-33. CYTHERE PLEBEIA var. CAPAX n. var..... 103

30. Left valve of this variety, showing relatively shorter form and finer surface punctation that distinguishes it from the typical variety of the species. Plum Point.
31, 32. Two right valves. Plum Point.
33. Interior of another right valve. Plum Point.

The figures on this plate are all magnified 20 diameters and the specimens are all from the Calvert formation at Plum Point, Md.

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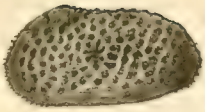
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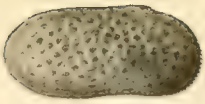
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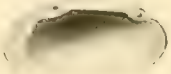
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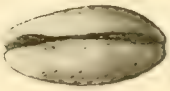
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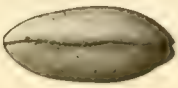
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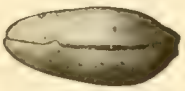
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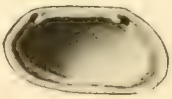
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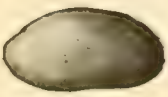
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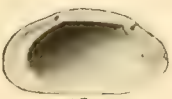
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ARTHROPODA—OSTRACODA.

PLATE XXXVI.

PAGE

Figs. 1-5. CYTHERE EXANTHEMATA n. sp. 117
1. Right valve of a young individual, with the nodes but little developed.
2, 3. Left valves of two older individuals, showing the usual characters.
4. Largest right valve seen.
5. Interior of right valve.

Figs. 6-8. CYTHERE EVAX n. sp. 119
6. Rather short right valve.
7. Left valve.
8. Another right valve.

Figs. 9, 10. CYTHERE EVAX var. OBLONGATA n. var. 119
9. Right valve. Plum Point.
10. Left valve with surface ornament obsolescent probably due to age.

Figs. 11-15. CYTHERE MARTINI n. sp. 112
11-13. Three right valves showing slight differences in ornament and outline.
14. Left side of an entire carapace, tilted slightly so as to show the dorsum of the opposite valve.
15. Left valve of a variety differing from the typical form of the species in the surface ornament and in being a little shorter.

Fig. 16. CYTHERE DORSICORNIS n. sp. 116
16. The left valve upon which this variety is founded. Plum Point.

Fig. 17. CYTHERE PRODUCTA n. sp. 115
17. A left valve showing the unusual posterior extension characterizing this species. In other specimens believed to be of this species the posterior end is wider. Plum Point.

Figs. 18-20. CYTHERE MICULA n. sp. 116
18. A small left valve. Plum Point.
19. A large right valve.
20. Another left valve. The left valve has minute spines on the anterior and posterior borders that are scarcely visible at this magnification.

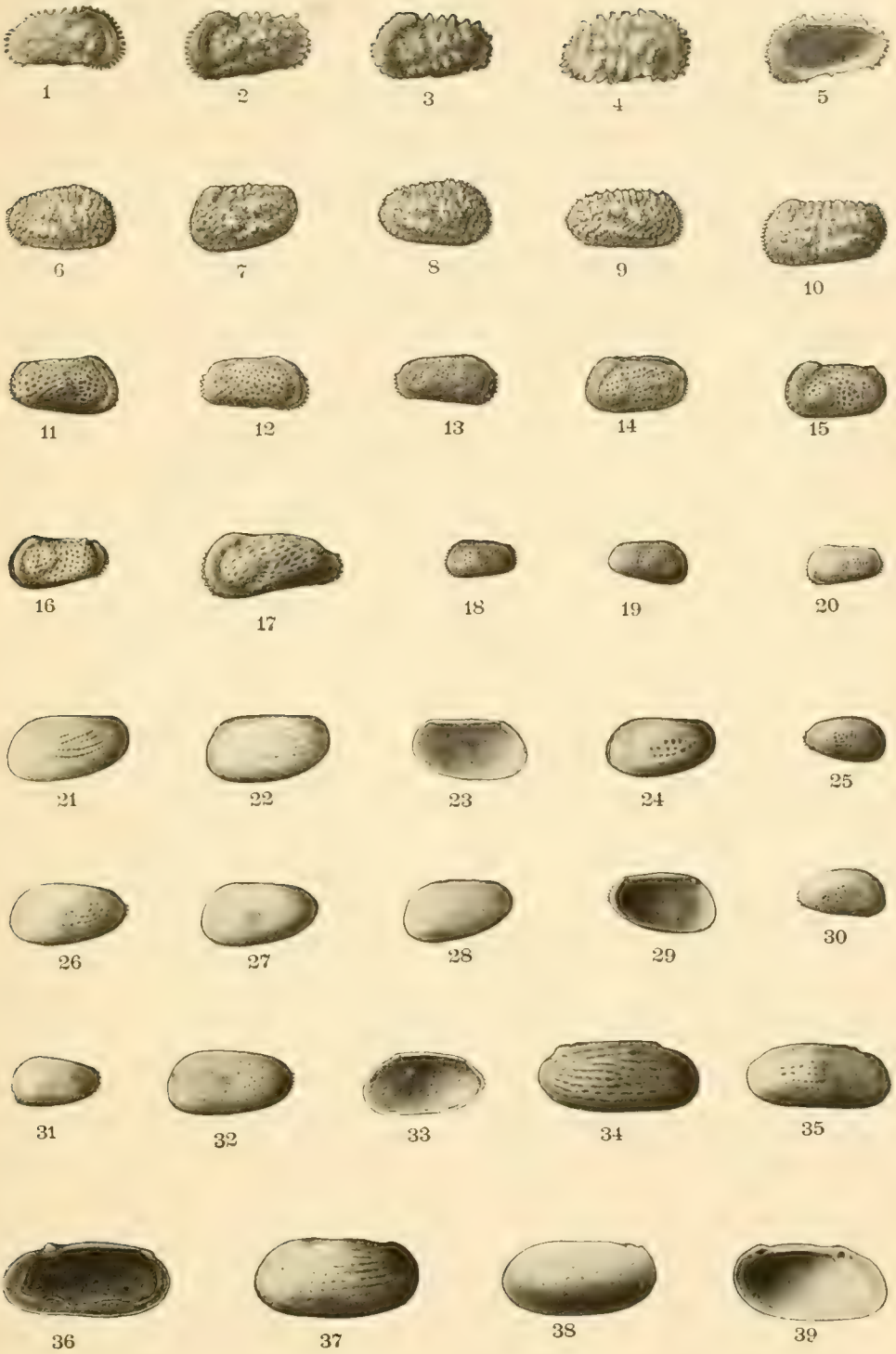
Figs. 21-23. CYTHERE NITIDULA n. sp. 107
21, 22. Two left valves showing slight differences in outline. Plum Point.
23. The interior of a third left valve showing that the anterior tooth of the hinge is very faintly developed in this species. Only a tooth socket is distinguishable at the posterior extremity.

Figs. 24, 25. CYTHERE NITIDULA var. CALVERTENSIS n. var. 108
24. A left valve of this variety or species.
25. A right valve referred to this variety or species with some doubt.

Figs. 26-33. CYTHERE PORCELLA n. sp. 106
26, 27. Two left valves of the form regarded as typical for the species. Plum Point.
28. Another left valve differing slightly in shape and probably somewhat macerated.
29. Inner side of fourth left valve.
30. A right valve.
31. A left valve somewhat doubtfully referred to this species and possibly indicating a distinguishable variety.
32. A more ovate left valve that also might be distinguished.
33. Interior of a right valve of the normal form.

Figs. 34-39. CYTHERE BURNSI n. sp. 103
34. A well-preserved right valve.
35. A smaller and apparently macerated right valve.
36. Interior of a right valve.
37. A large and unusually well-preserved left valve.
38. Another left valve on which the longitudinal striation is obsolete.
39. Interior of a left valve.

The figures on this plate are all magnified 20 diameters and the specimens are all from the Calvert formation at Plum Point, Md.



ARTHROPODA—OSTRACODA.

PLATE XXXVII.

PAGE

Figs. 1-8. CYTHERIDEA SUBOVATA n. sp. 124

1. A right valve doubtfully referred to this species. The posterior outline is more uniformly rounded and the central portion of the surface more peaked than usual. Plum Point.
2, 3. Interior of a left valve of the normal form × 37 and × 20.
4, 5. Two left valves of a narrow variety.
6. Dorsal edge of a typical specimen.
7, 8. Interior of a right valve of the typical form × 37 and × 20.

Fig. 9. CYTHERIDEA (?) CHESAPEAKENSIS n. sp. 125

9. A right valve of this species. Plum Point.

Figs. 10-16. CYTHERIDEIS ASHERMANI n. sp. 126

10. Rather large left valve. Surface pitting indistinct. Plum Point.
11. A small right valve.
12, 13. Two small left valves.
14. Interior of a large right valve.
15. Dorsal aspect of an entire carapace tilted so as to show more of the left valve than of the right.
16. A left valve differing from the usual form in being relatively a little longer and in having the posterior outline less narrowly rounded.

Fig. 17. CYTHERIDEIS CYLINDRICA n. sp. 126

17. A left valve. Plum Point.

Figs. 18-20. CYTHERIDEIS SEMICIRCULARIS n. sp. 127

18. An entire carapace from the right side but tilted so as to show the dorsal edge of the left valve, the central part of which is really overlapped by the dorsal edge of the right valve.
19. Ventral view of another entire specimen showing that here the left valve slightly overlaps the right.
20. A right valve showing usual outline and surface markings.

Figs. 21-27. CYTHERIDEIS LONGULA n. sp. 128

21-23. Three right valves showing unimportant variations in outline and surface ornament.
24. Ventral edge of an entire carapace.
25. A left valve.
26. A right valve, doubtfully referred to this species.
27. Interior of left valve of typical form. The pits on the surface of this valve are about as in figure 22 but more distinctly impressed.

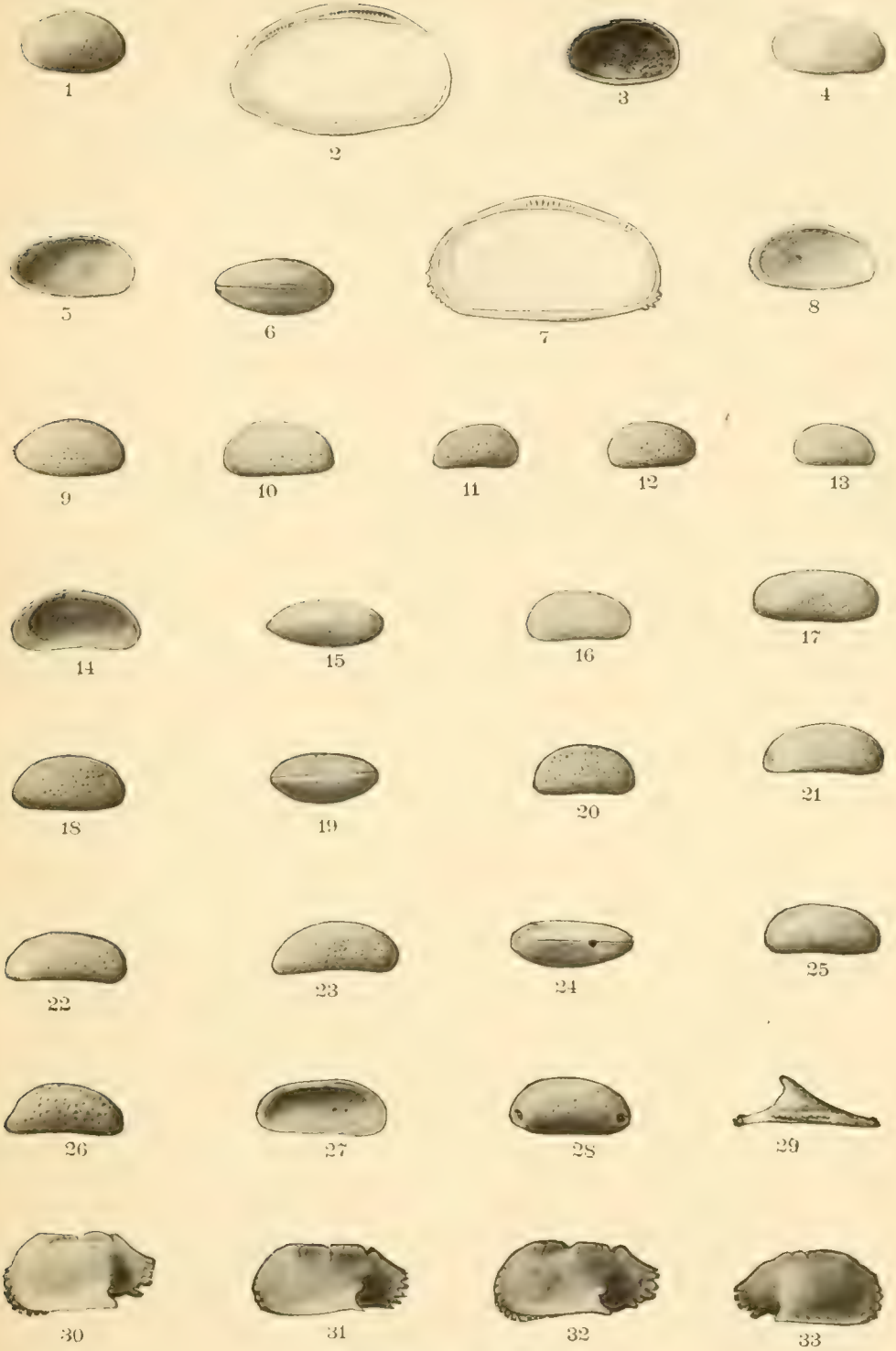
Fig. 28. CYTHERIDEIS SUBÆQUALIS n. sp. 127

28. A specimen preserving both valves showing the right side but tilted slightly to expose the ventral overlap of the left valve. The rounded holes in each end are the work of some boring mollusk or other organism. Plum Point.

Figs. 29-33. CYTHEREIS CORNUTA var. AMERICANA n. var. 122

29. Dorsal view of a left valve.
30-32. Three left valves showing the extremes of variation observed in the Maryland specimens.
33. A right valve.

Excepting Figs. 2 and 7, all the figures on this plate are magnified 20 diameters. The specimens are all from the Calvert formation at Plum Point, Md.



ARTHROPODA—OSTRACODA.

PLATE XXXVIII.

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Figs. 1-3. CYTHERE PLANIBASALIS n. sp. 99

1. Lateral view of a right valve. James River, Virginia.
2. Posterior view of the same. James River, Virginia.
3. Ventral view of the same. James River, Virginia.

Figs. 4-6. CYTHERE TUOMEYI n. sp. 105

4. Lateral view of a left valve × 25⅓. Yorktown, Va.
5, 6. Lateral views of a right valve × 25⅓ and × 13⅓, apparently of the same species. Peach Blossom Creek, 3 miles southwest of Easton.

Figs. 7-9. CYTHERE PAUCIPUNCTATA n. sp. 105

7. Lateral view of a left valve. Peach Blossom Creek.
8, 9. Posterior and ventral views of same in outline.

Fig. 10. CYTHERE (?) SHATTUCKI n. sp. 121

10. Lateral view of a left valve. Pawpaw Point.

Figs. 11-13. CYTHERE CALVERTI n. sp. 100

11-13. Lateral, anterior and ventral views of a left valve. Plum Point.

Figs. 14-15. CYTHERE SUBOVALIS n. sp. 111

14, 15. Lateral and ventral views of a left valve. Pawpaw Point.

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16, 17. Lateral and dorsal views of a left valve. James River, Virginia.

Fig. 18. CYTHERE SPINIPLICATA n. sp. 120

18. Lateral view of a right valve. Plum Point.

Figs. 19-21. CYTHERE FRANCISCA n. sp. 110

19, 20. Two lateral views of a right valve × 25⅓ and × 13⅓. Peach Blossom Creek.
21. Ventral view of same.

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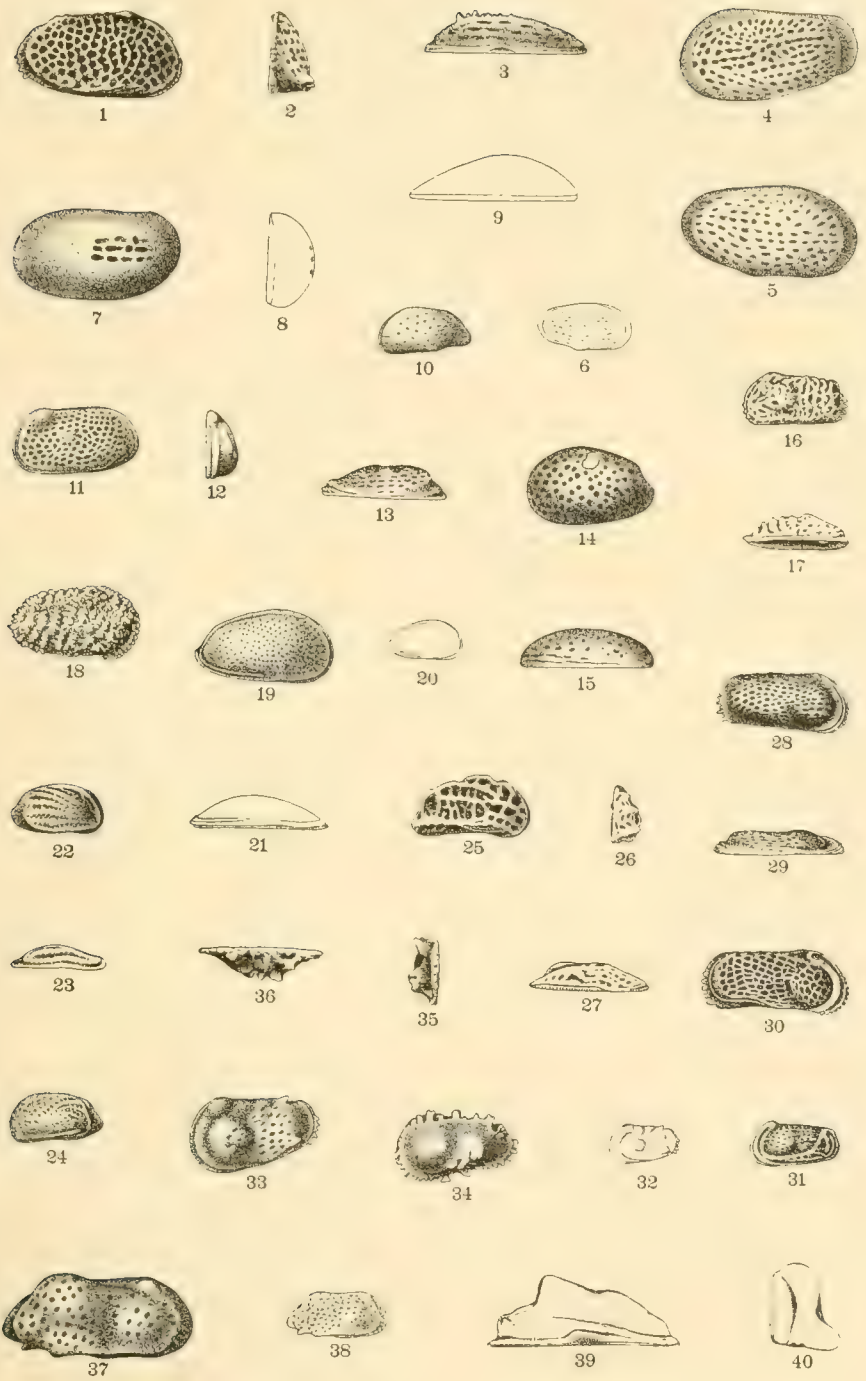
37-40. Two lateral, a ventral and a posterior view of a right valve × 25⅓ and × 13⅓. James River, Virginia.

Unless stated otherwise all the figures on this plate are magnified 13⅓ times.



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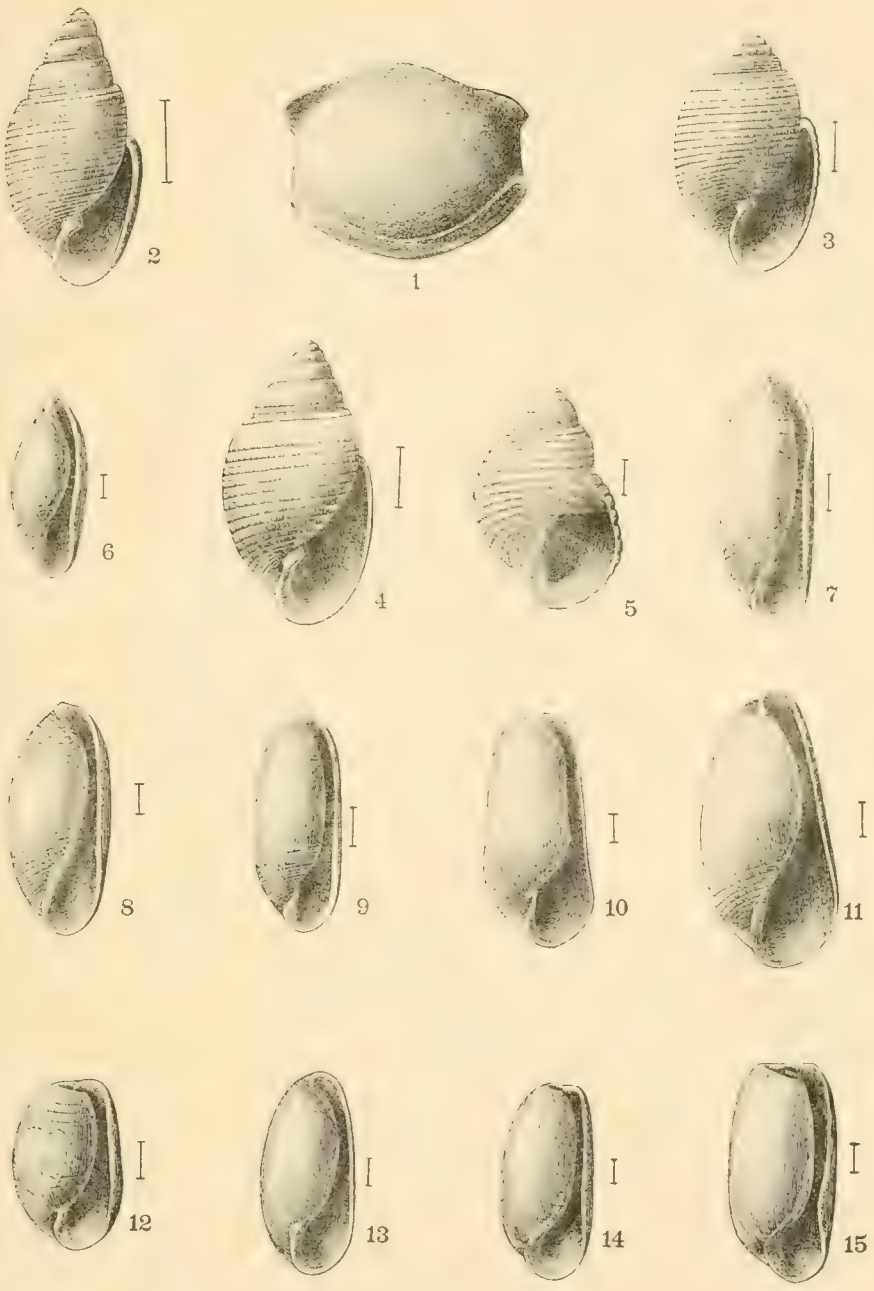

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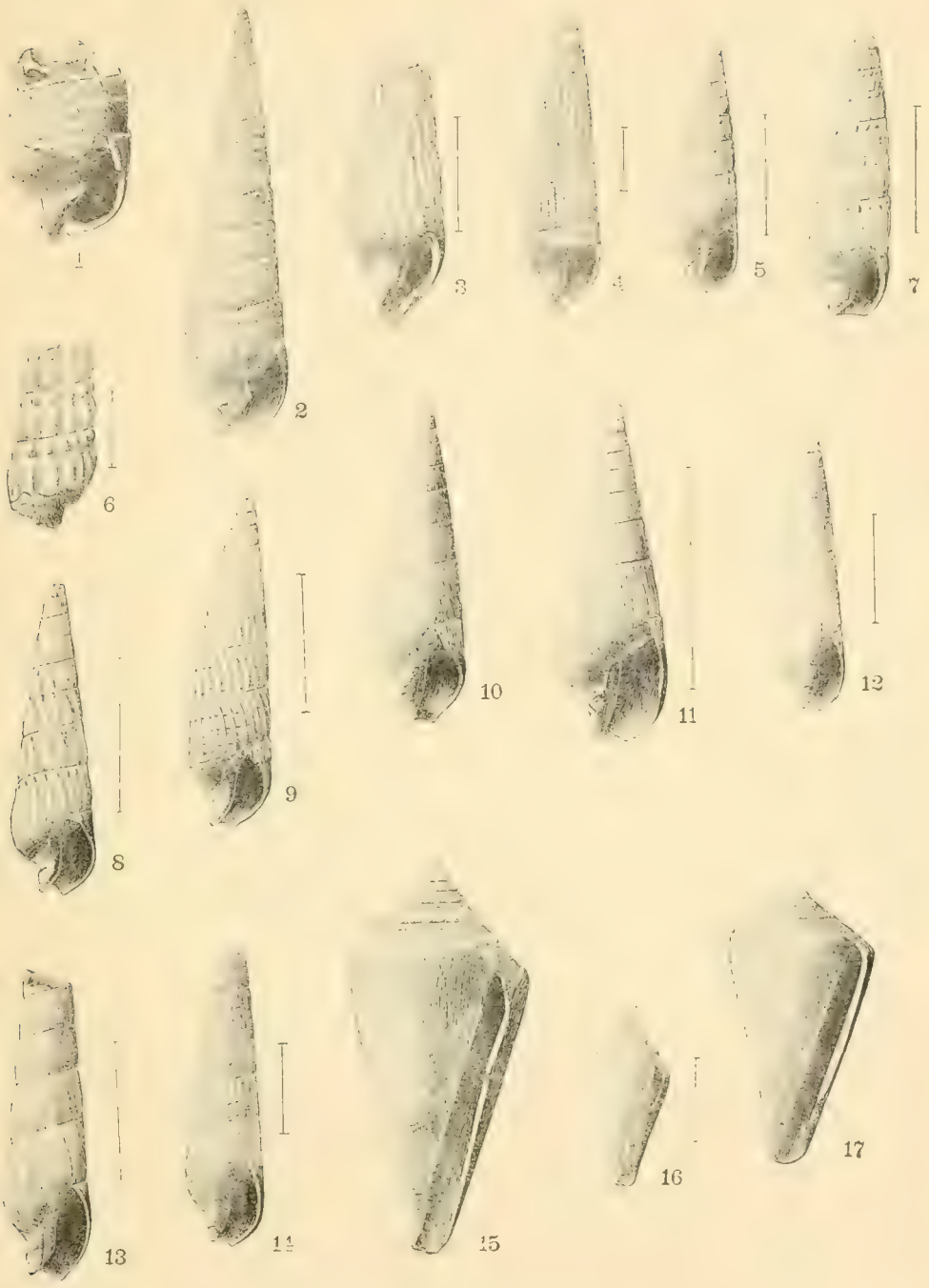

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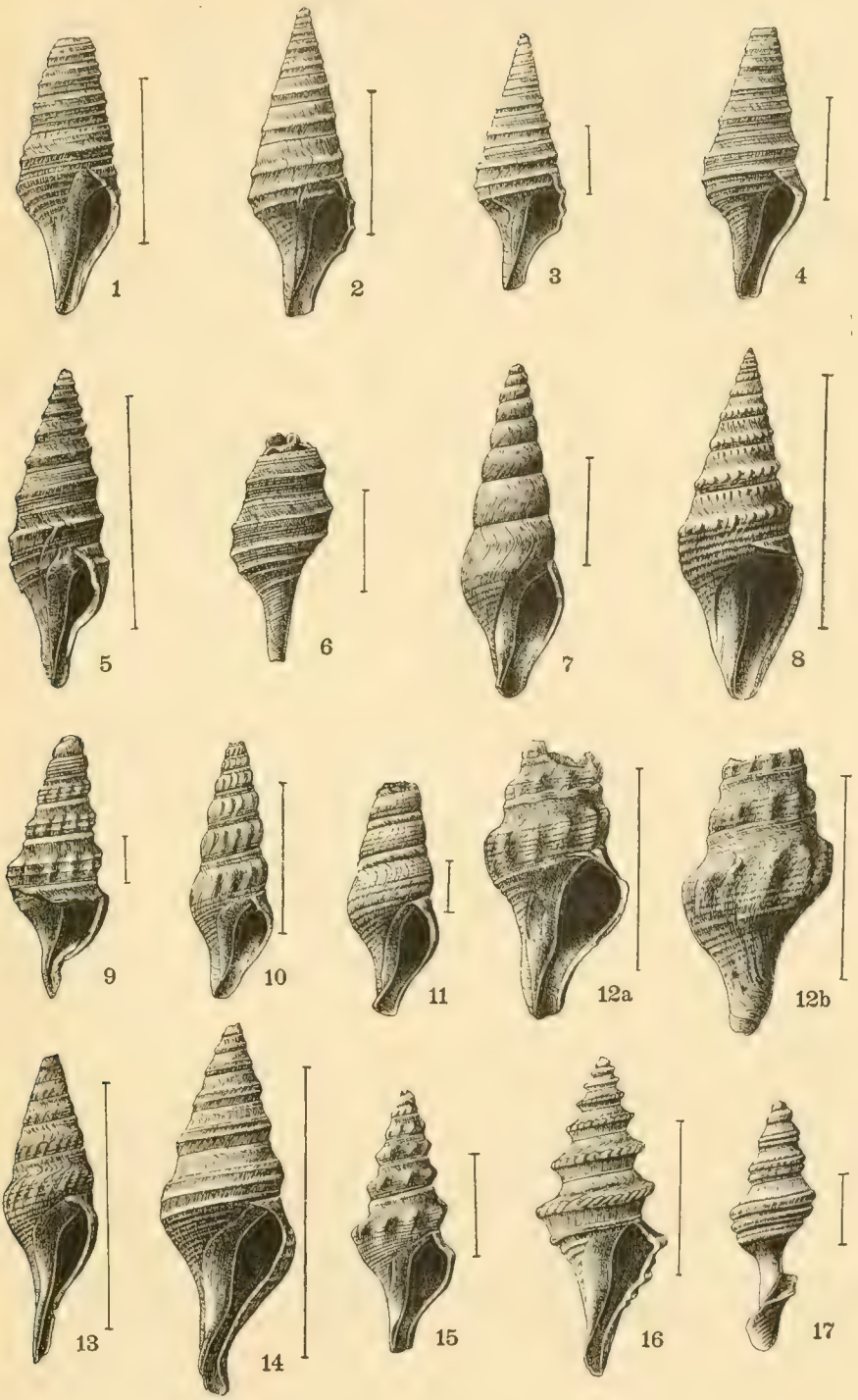

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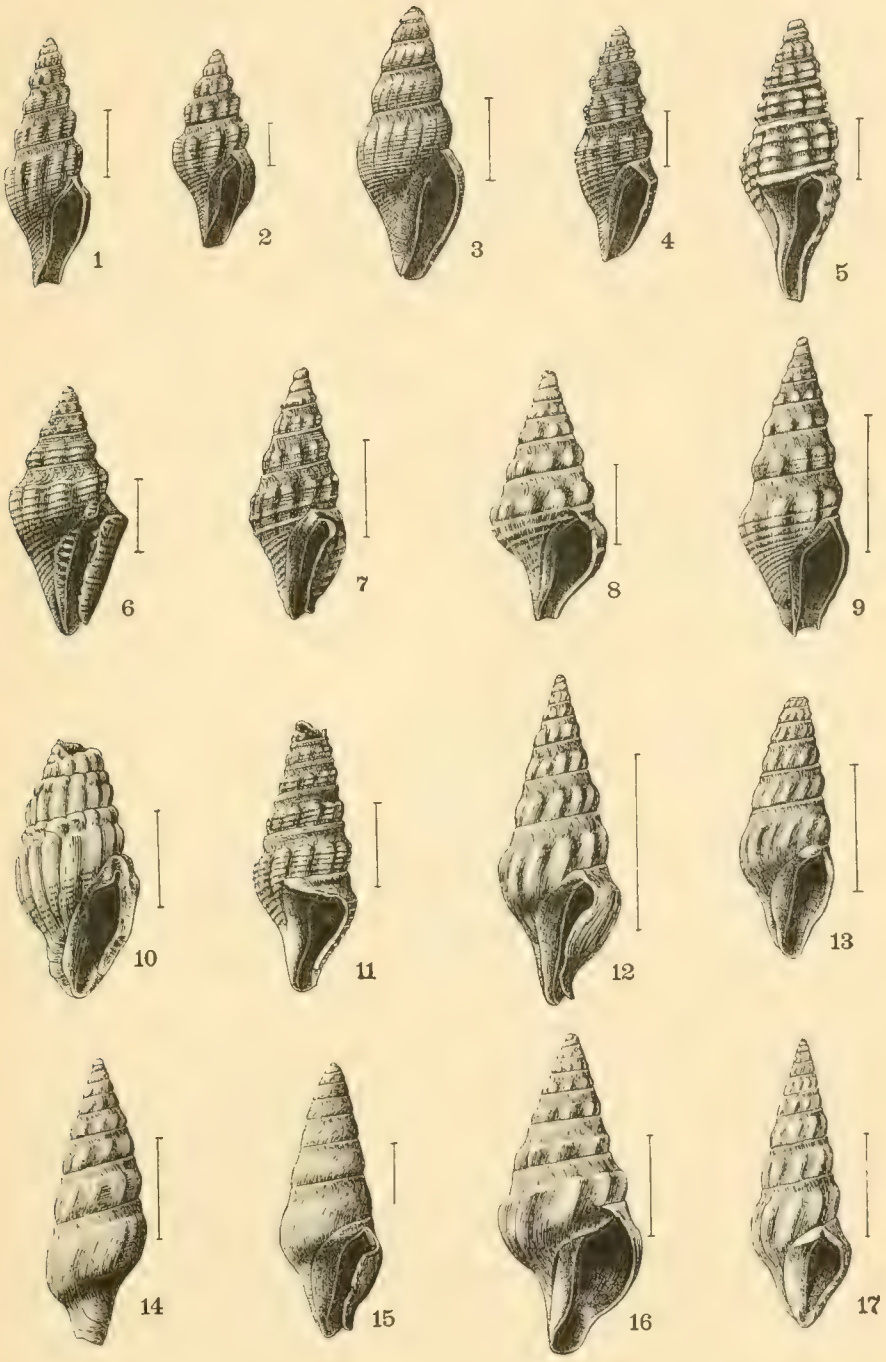

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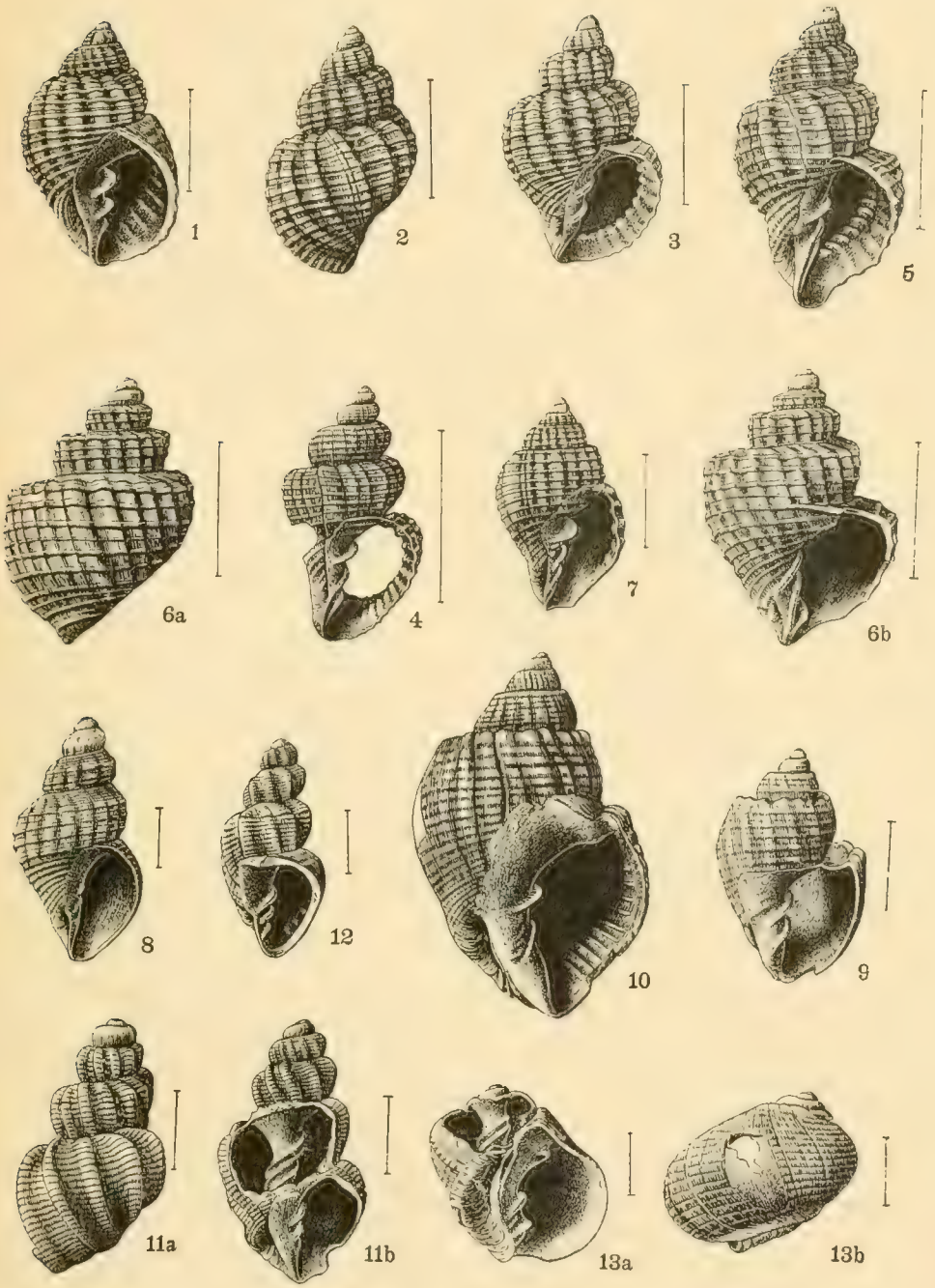

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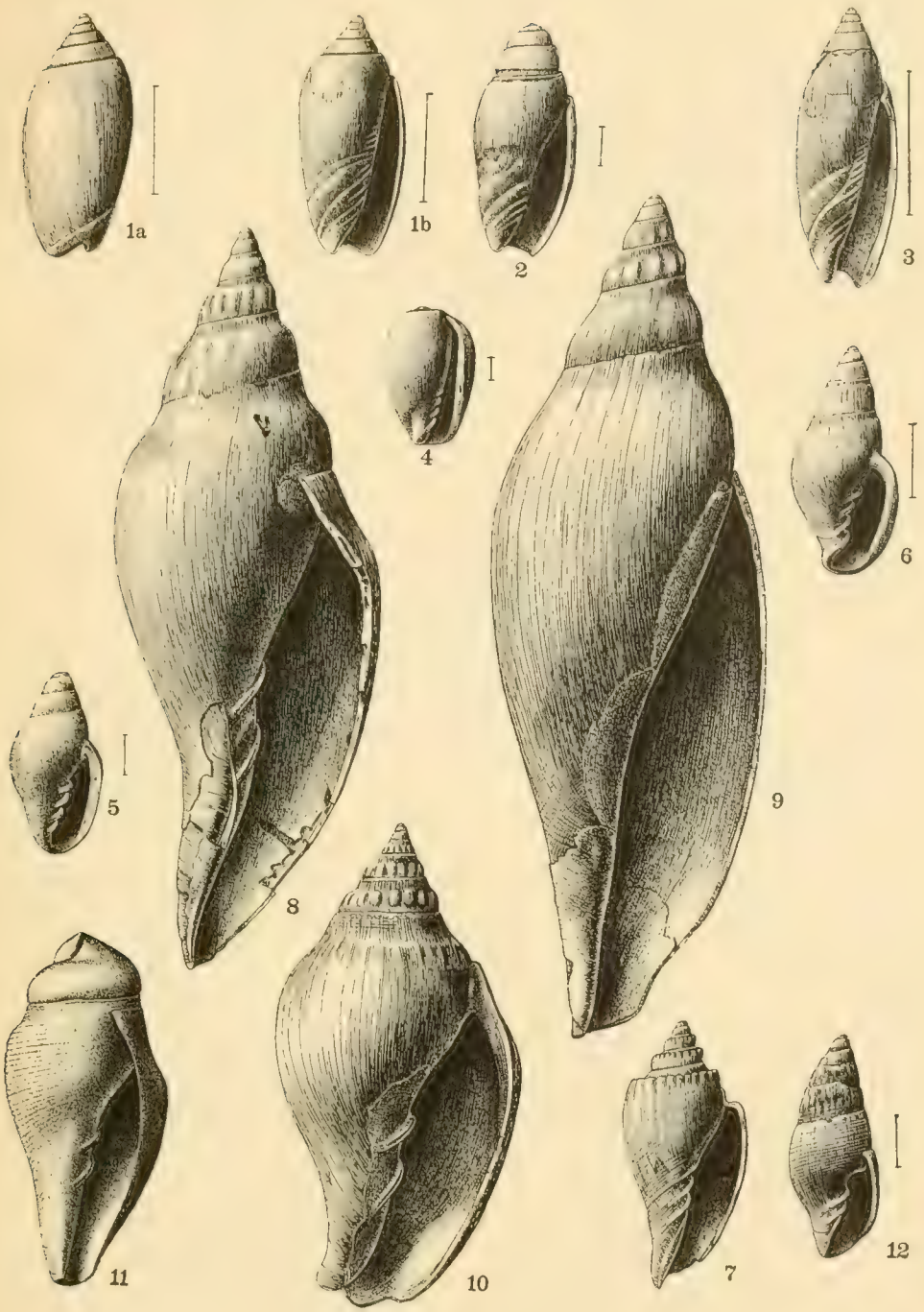

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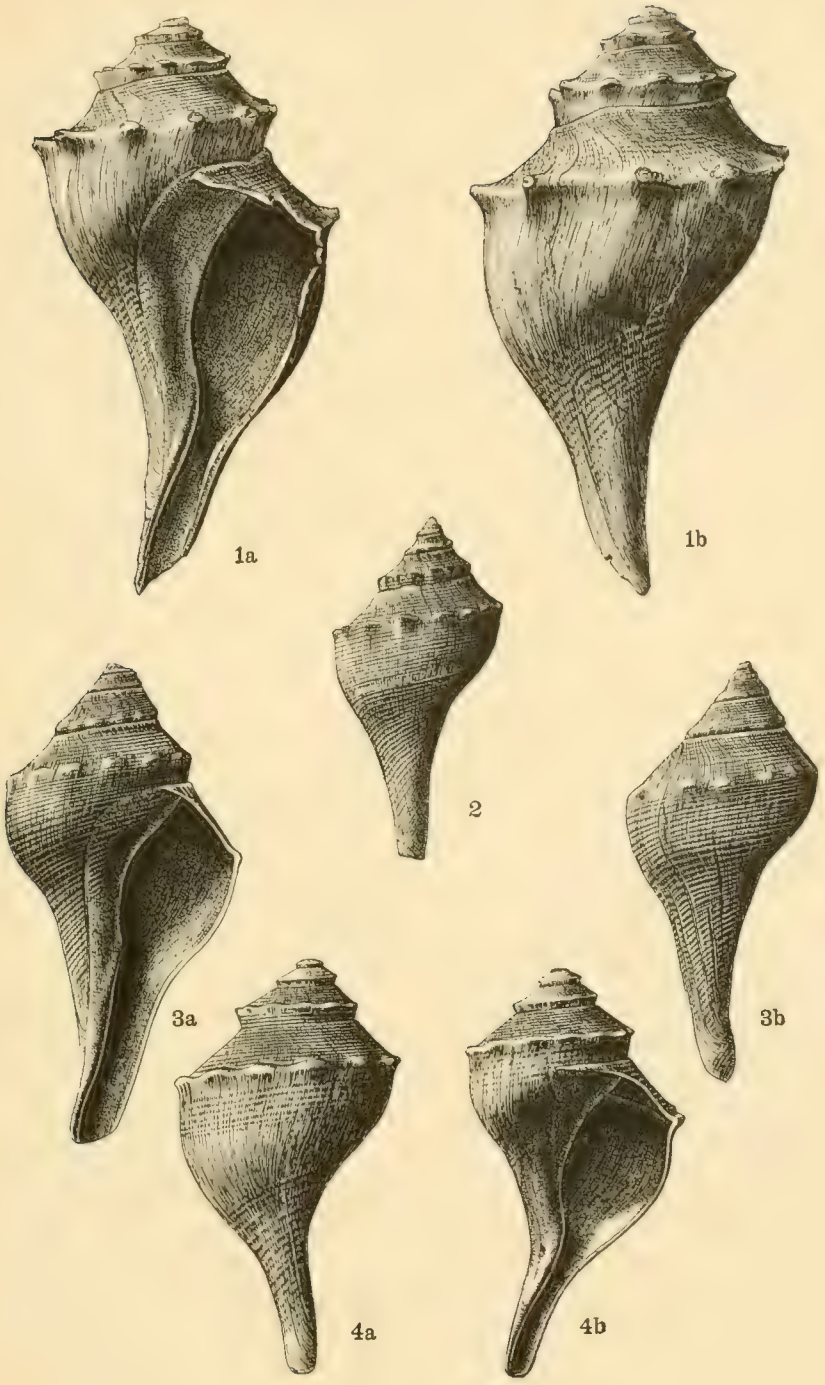

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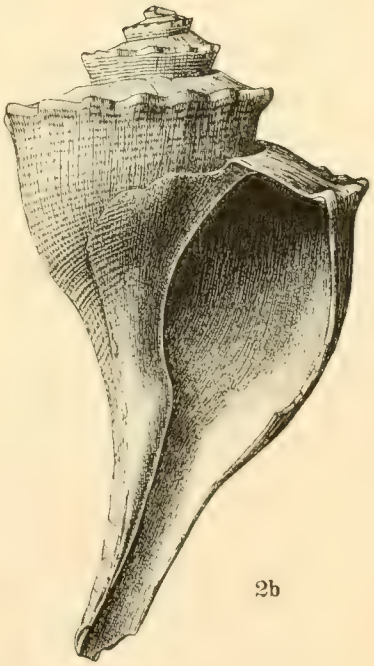
1a

1b

2a



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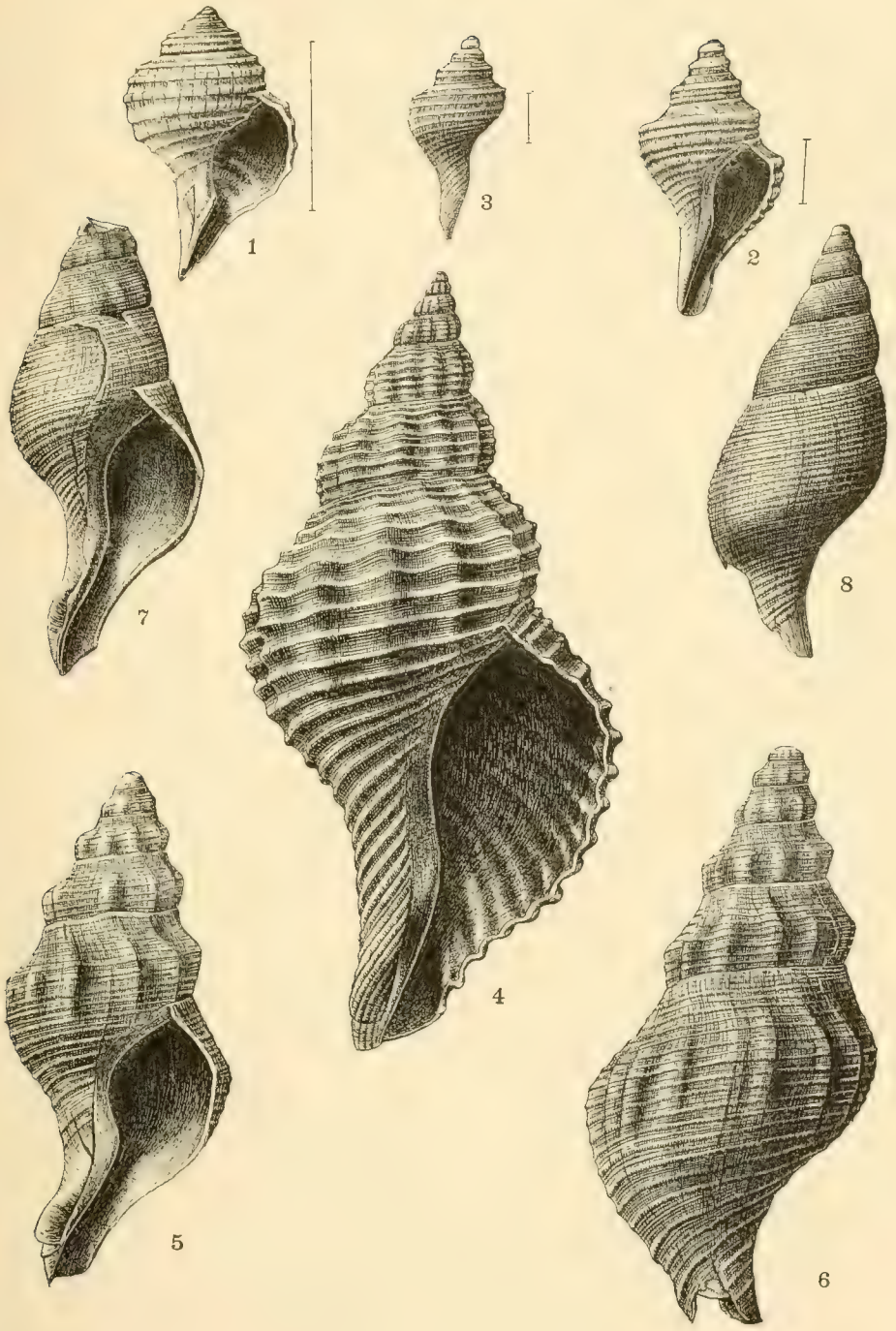

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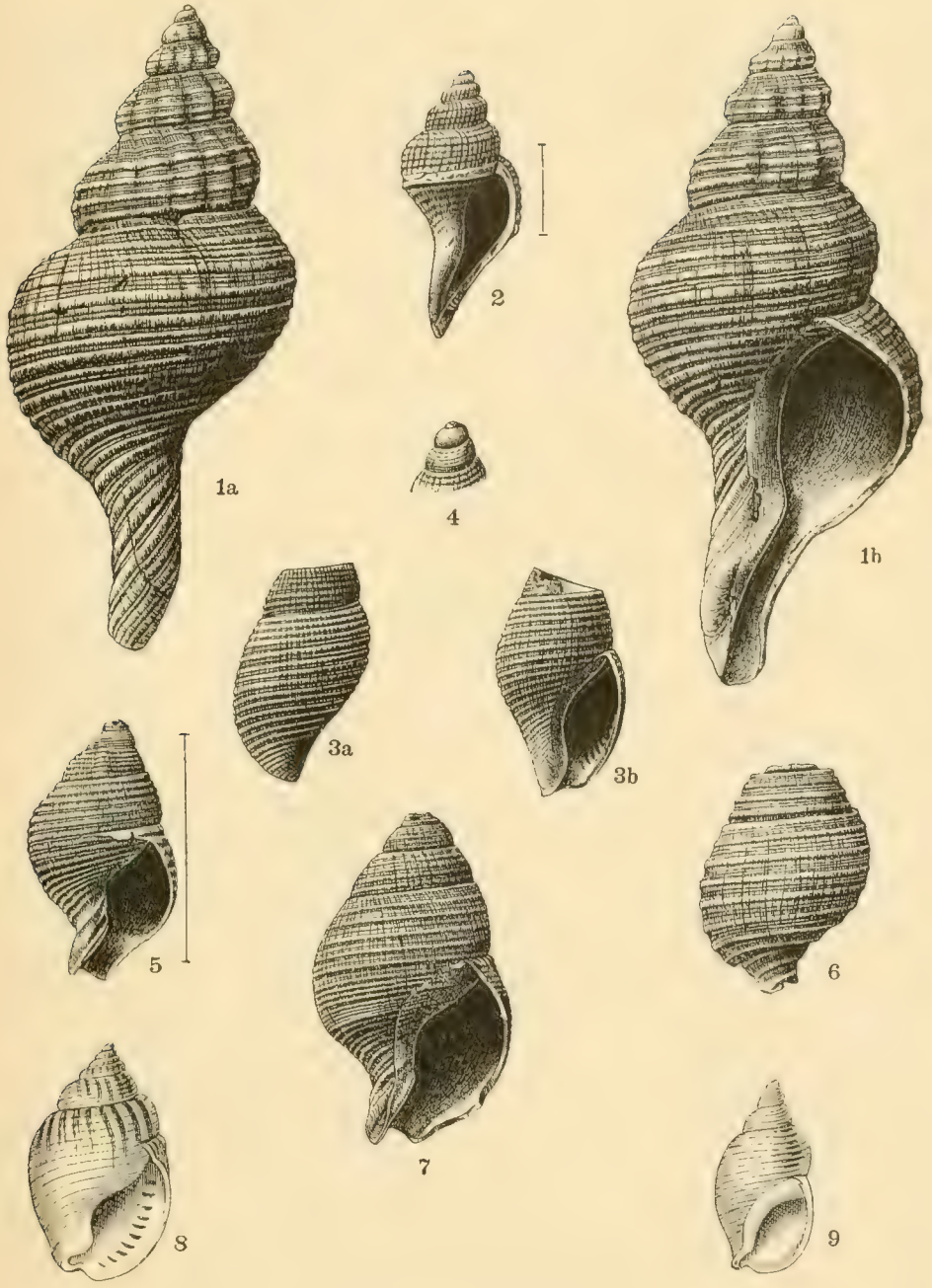

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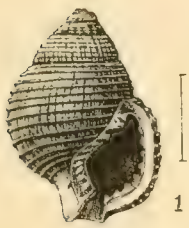
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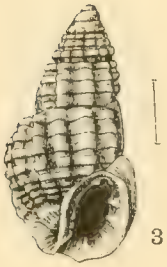
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5a

5b

6

7

8

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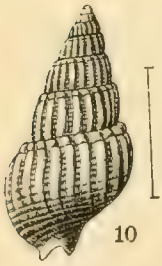
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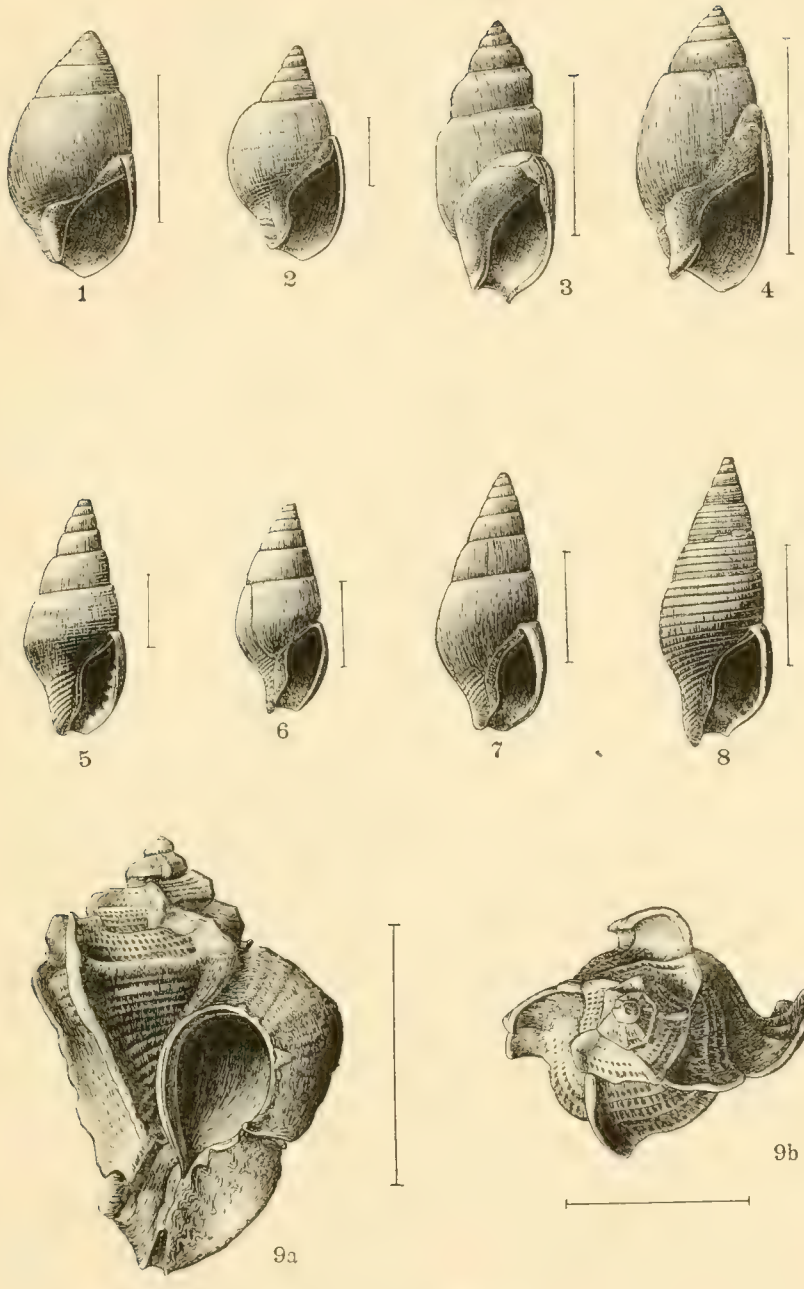

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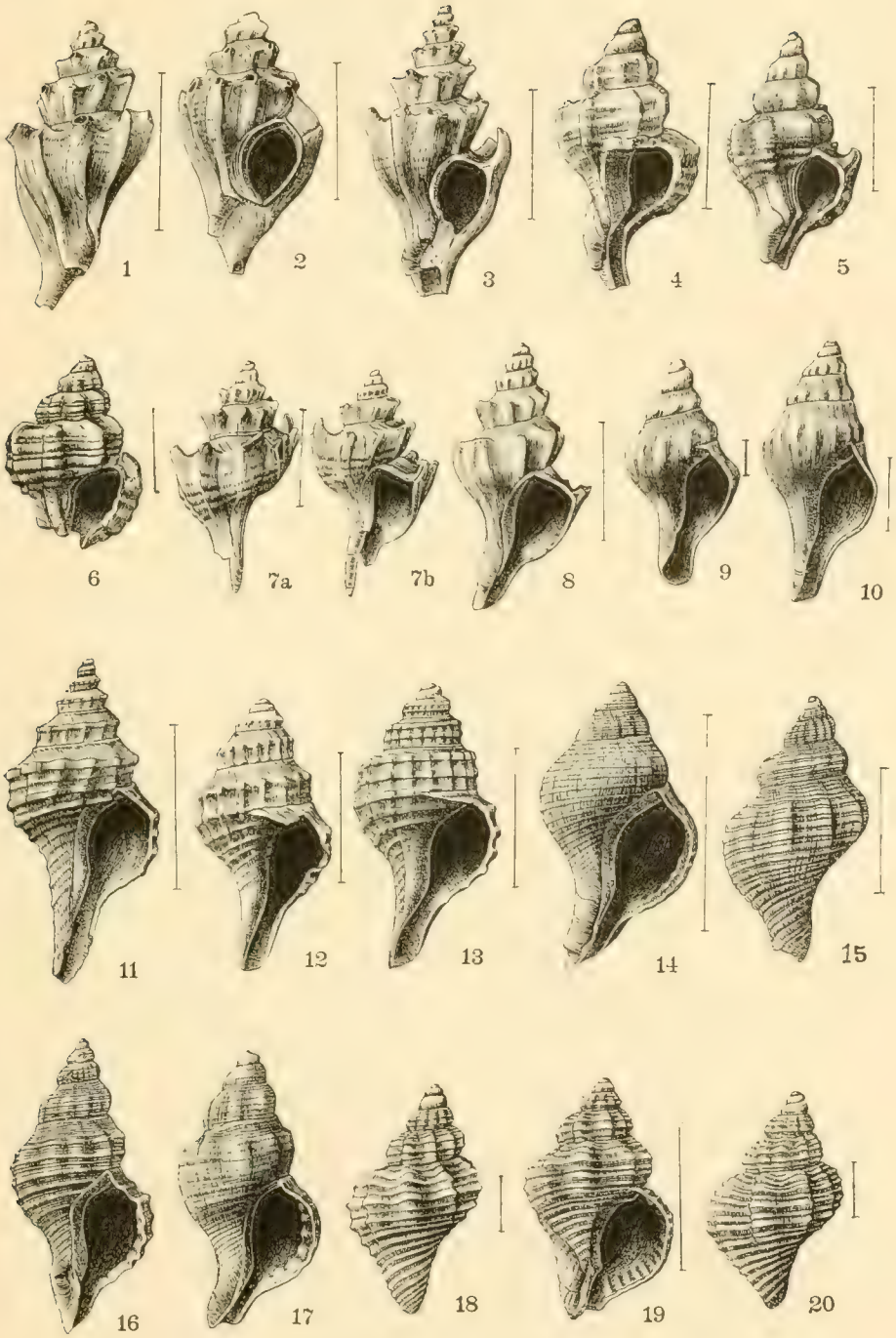

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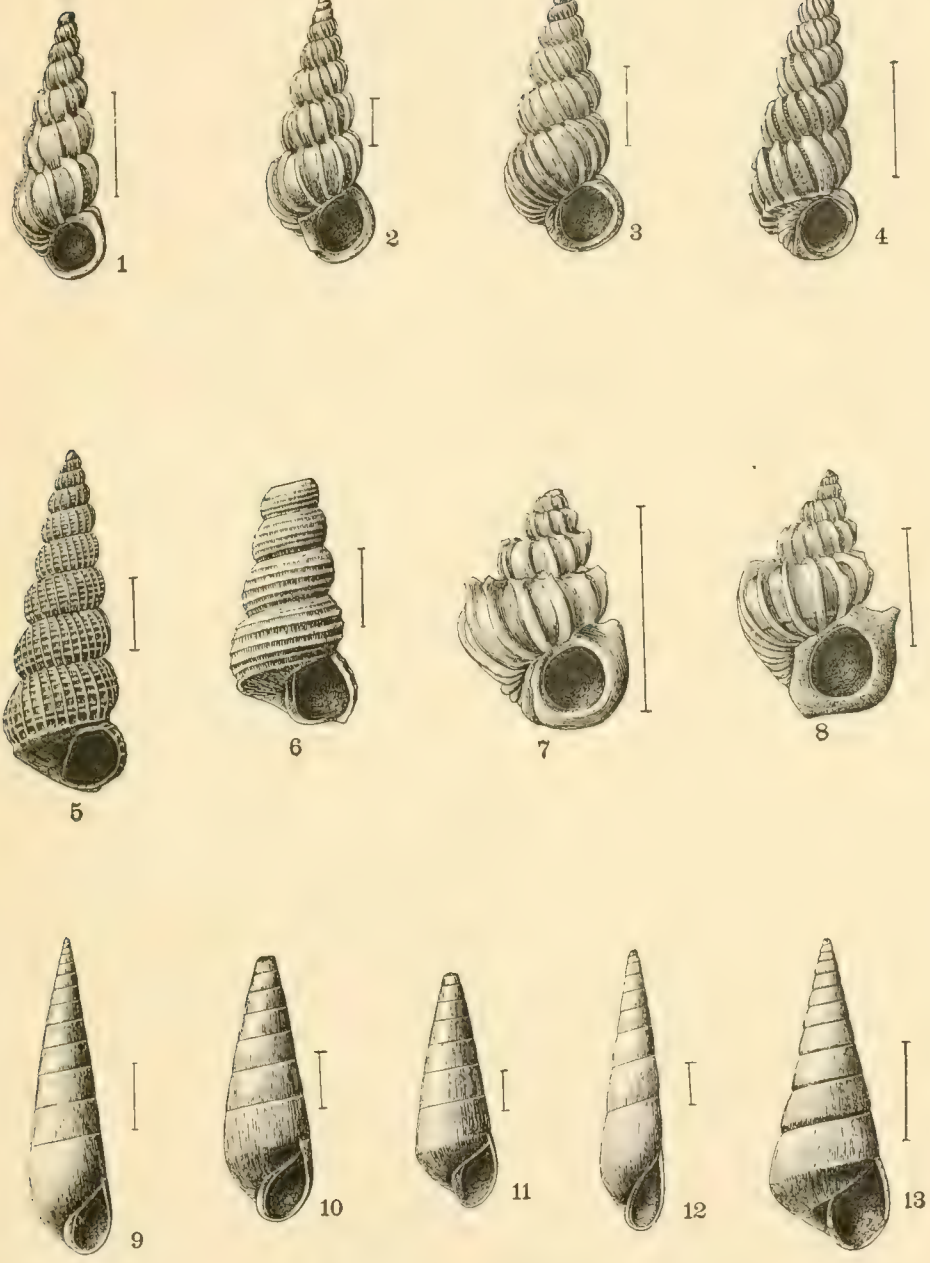

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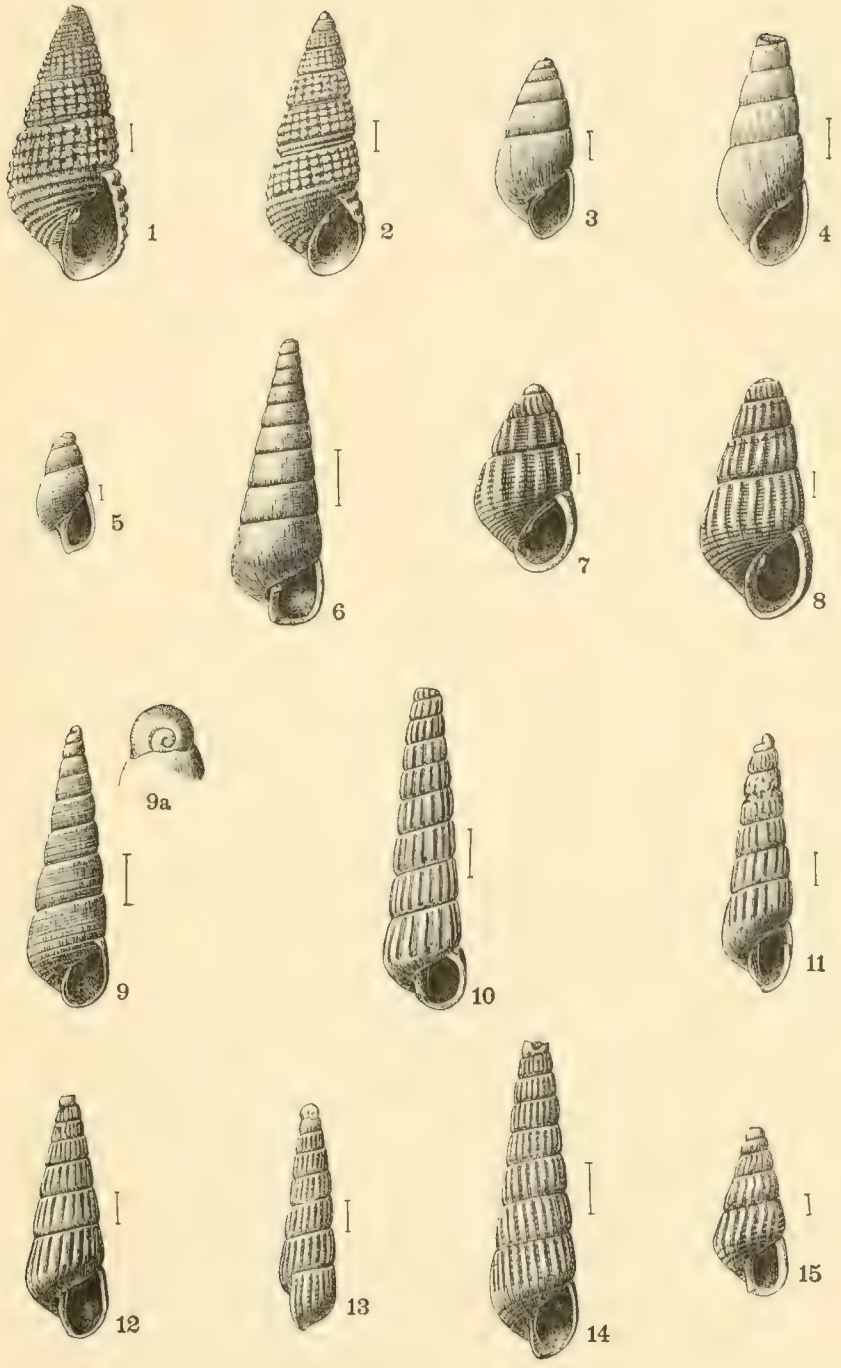

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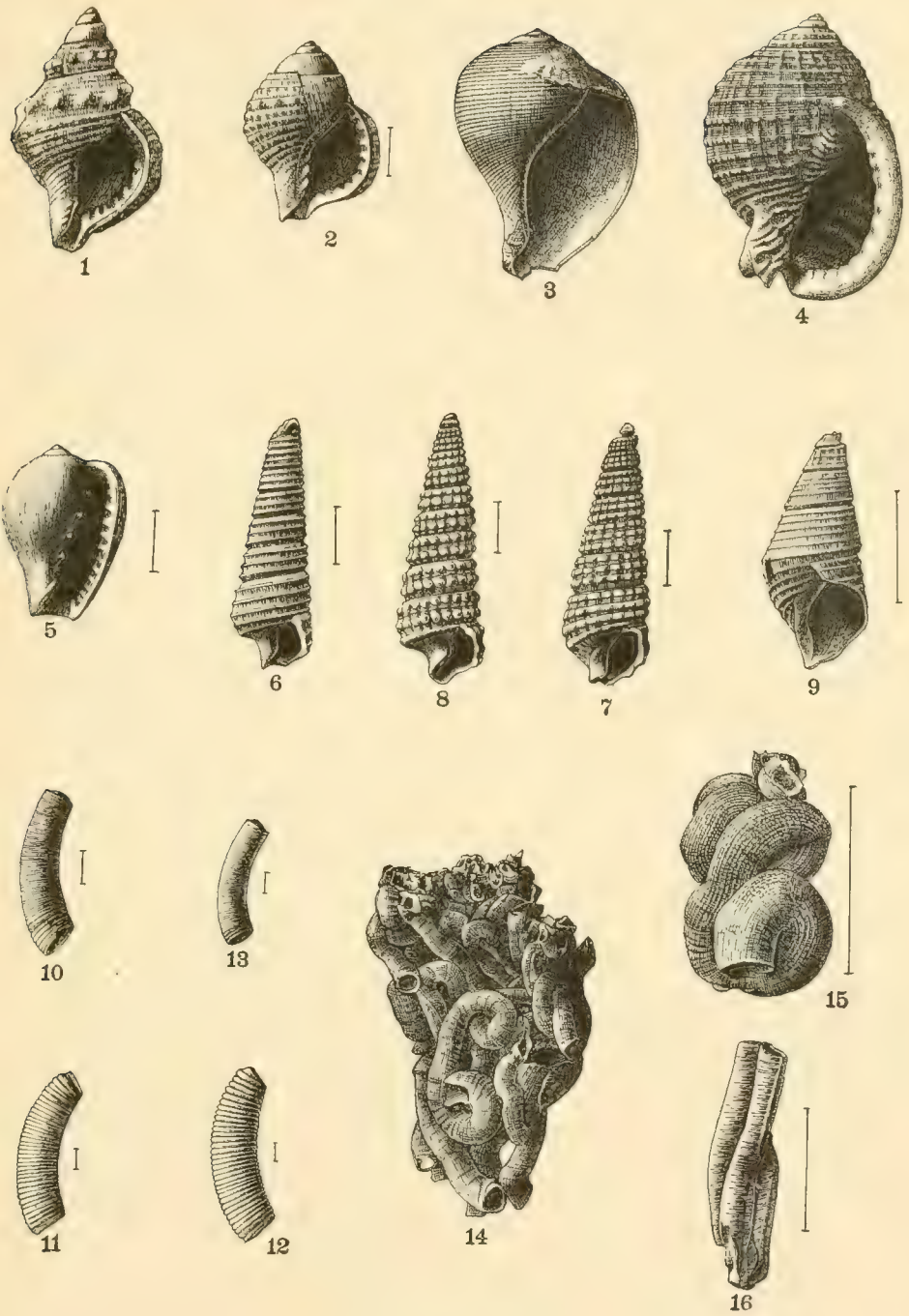

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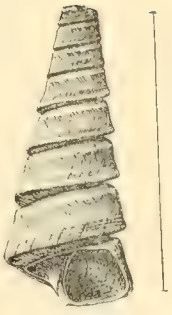

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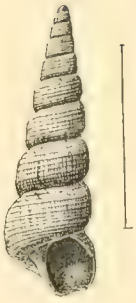
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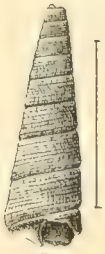

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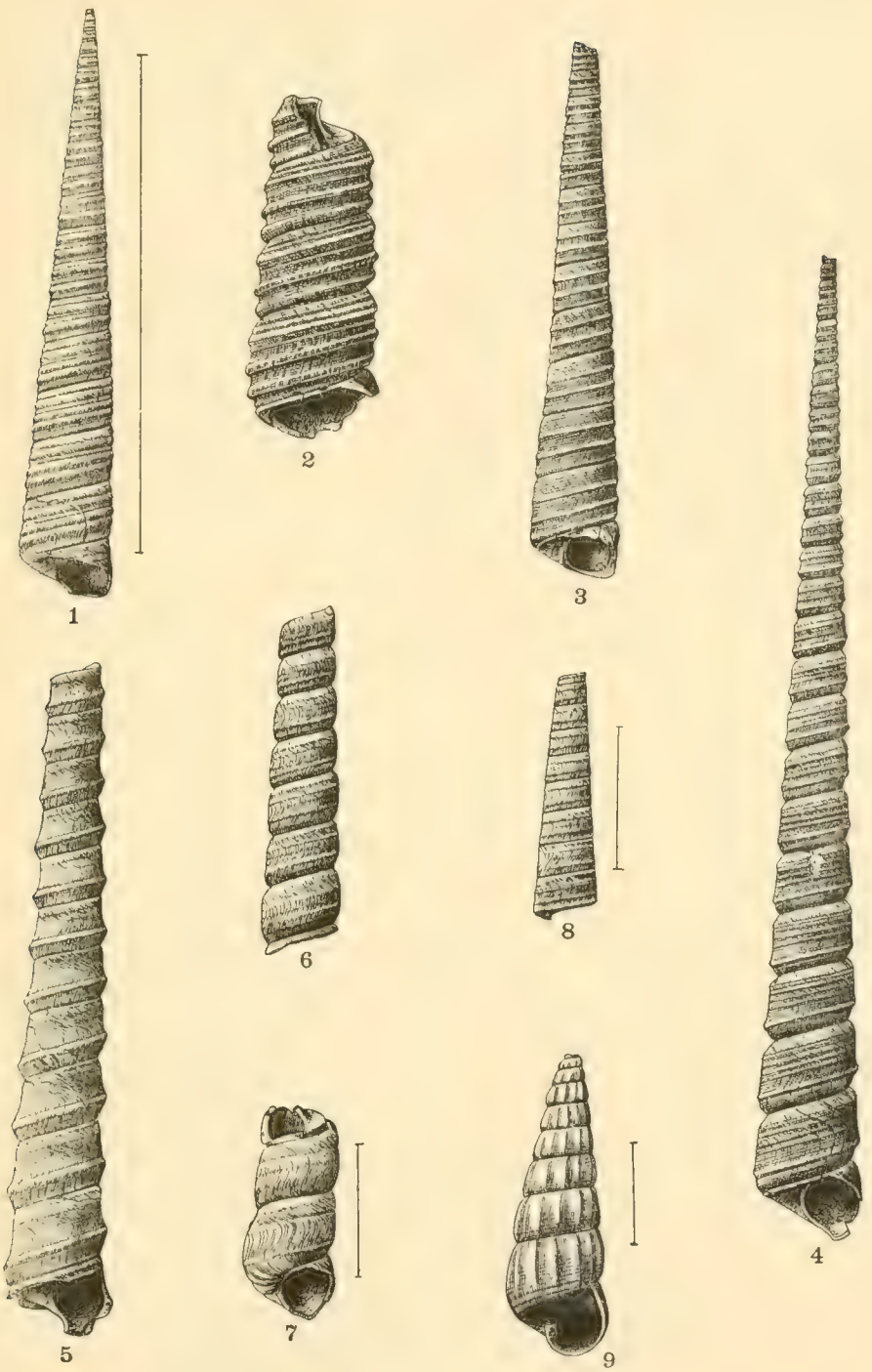

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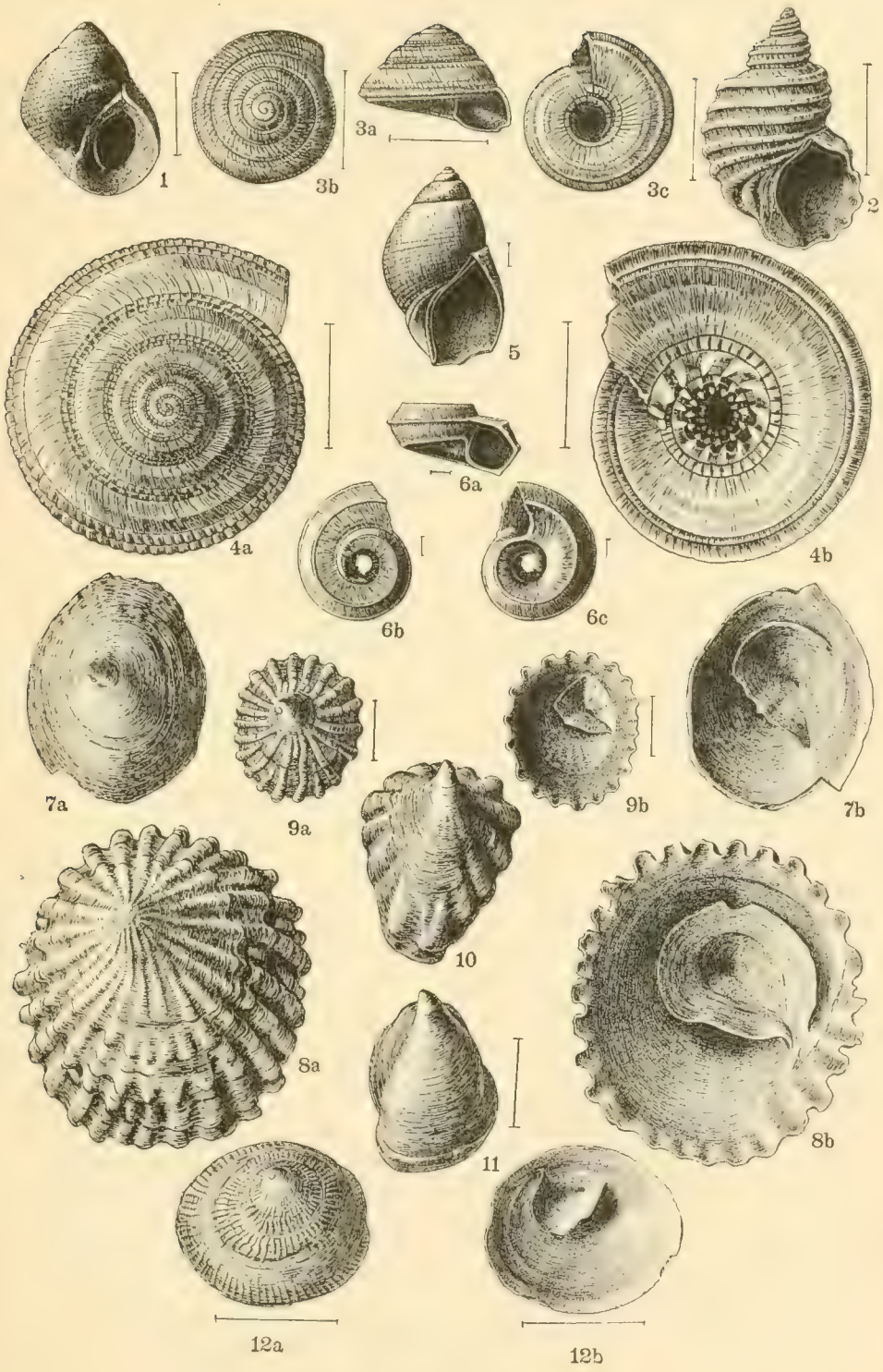

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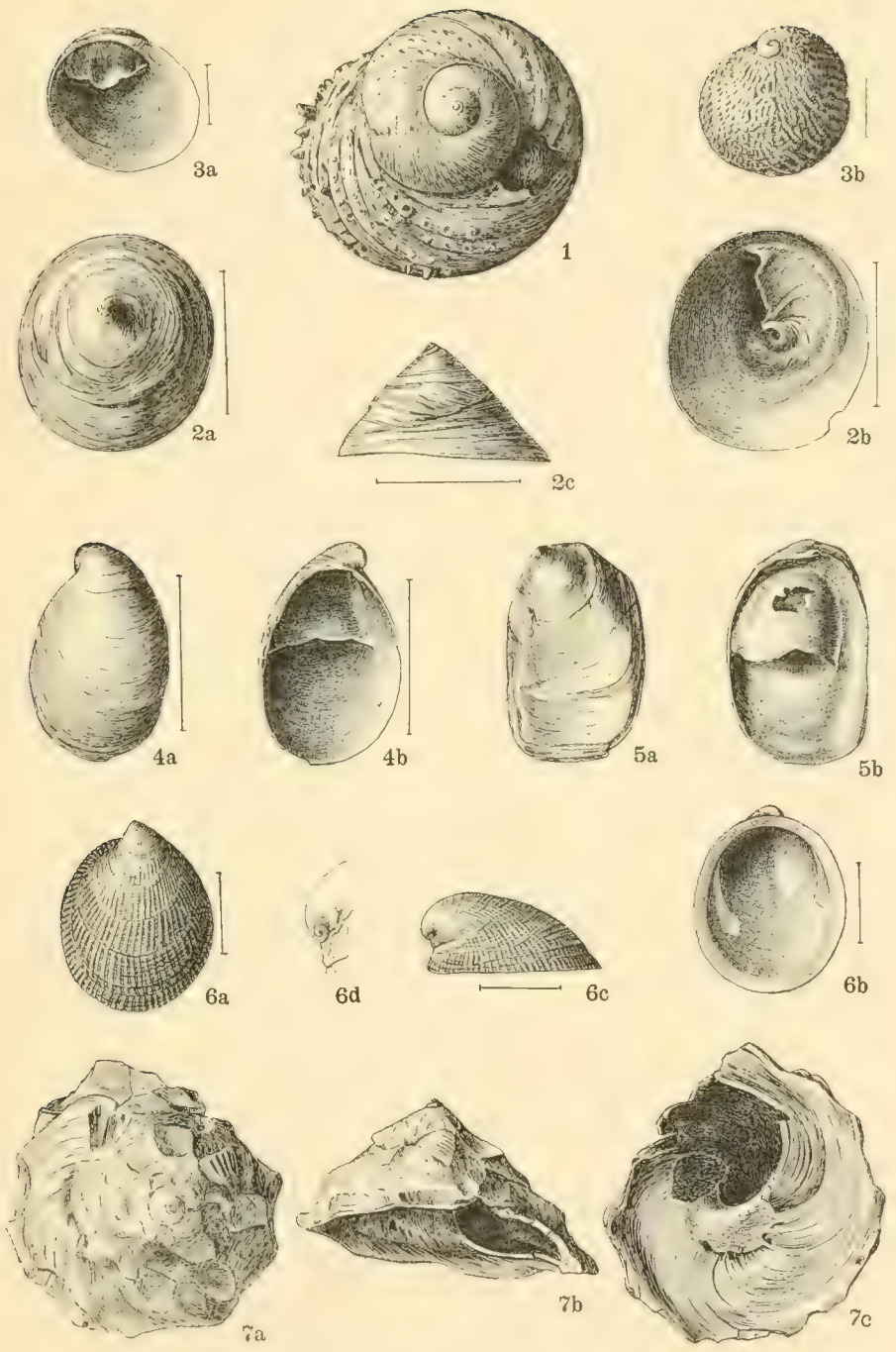

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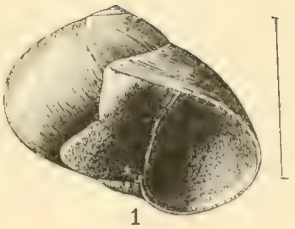

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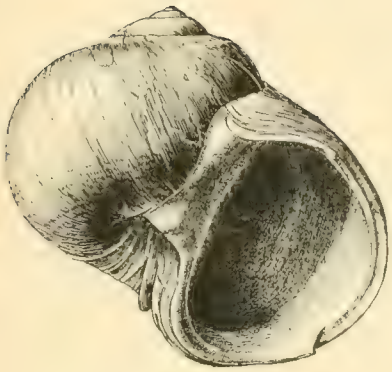

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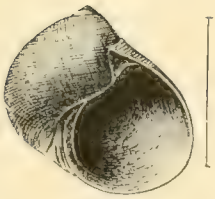

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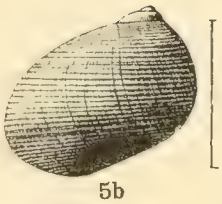

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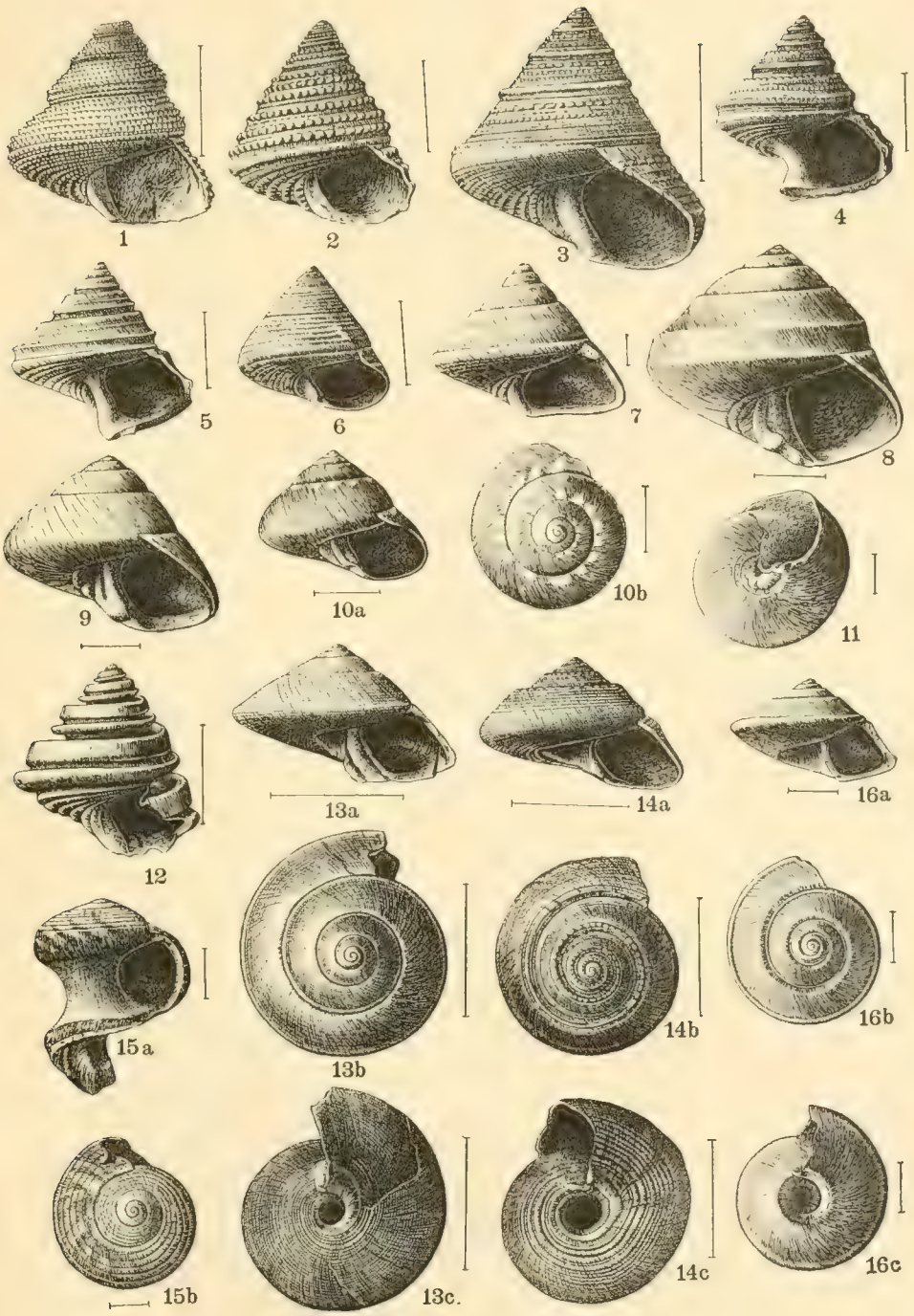

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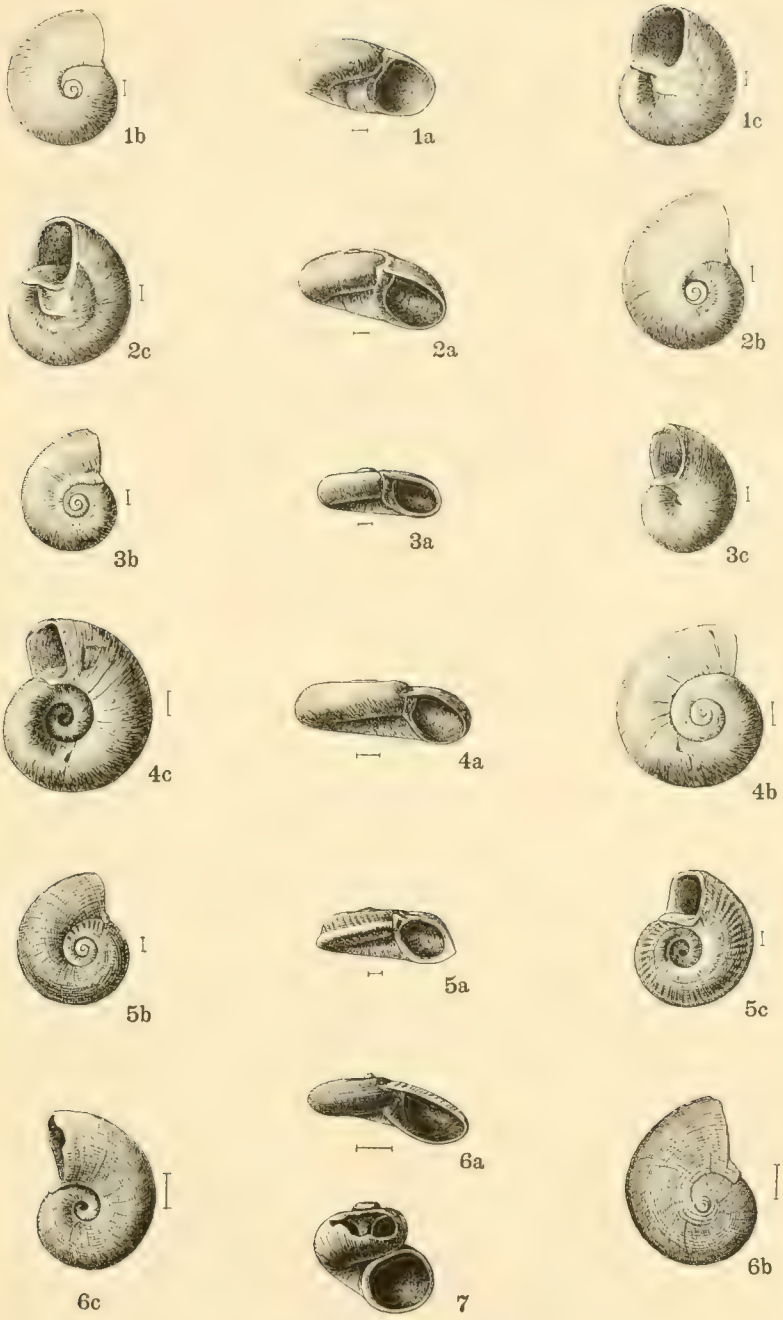

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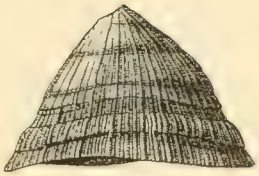

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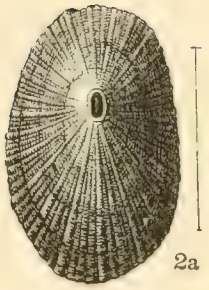

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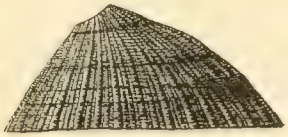

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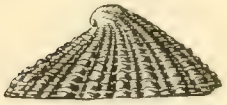

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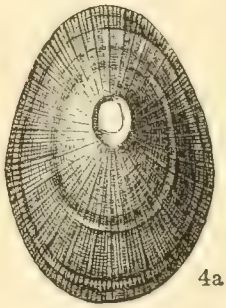

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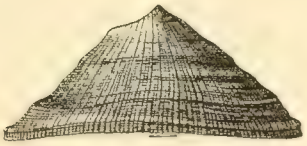

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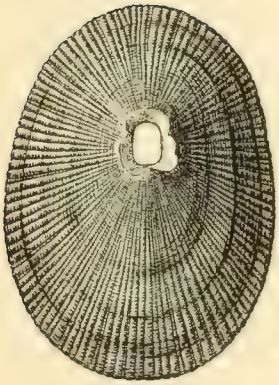

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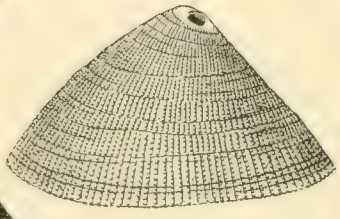

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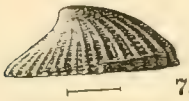

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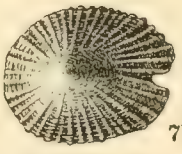

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1a. Ventral view of posterior valve. 3 miles south of Chesapeake Beach.

1b. Dorsal view of the same specimen.

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2b. Ventral view of the same specimen.

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5b. View of aperture of the same specimen. (After Dall.)

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6. Specimen from Plum Point.

Fig. 7. Cadulus newtonensis Meyer and Aldrich..... 273

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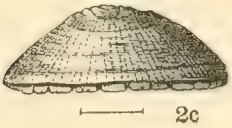
1b

1a

2a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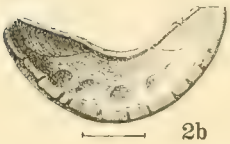
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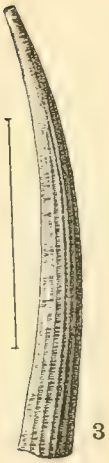
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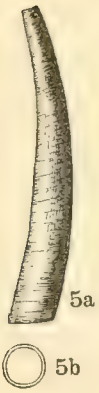
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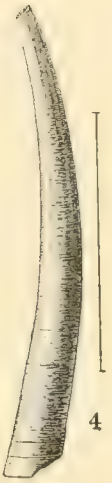
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MOLLUSCA—AMPHINEURA AND SCAPHOPODA.

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Fig. 1. Pholas (Thorana) producta Conrad 274

1. Exterior of left valve. South Carolina. (After Tuomey and Holmes.)

Figs. 2, 3. Barnea (Scobina) arcuata (Conrad) 274

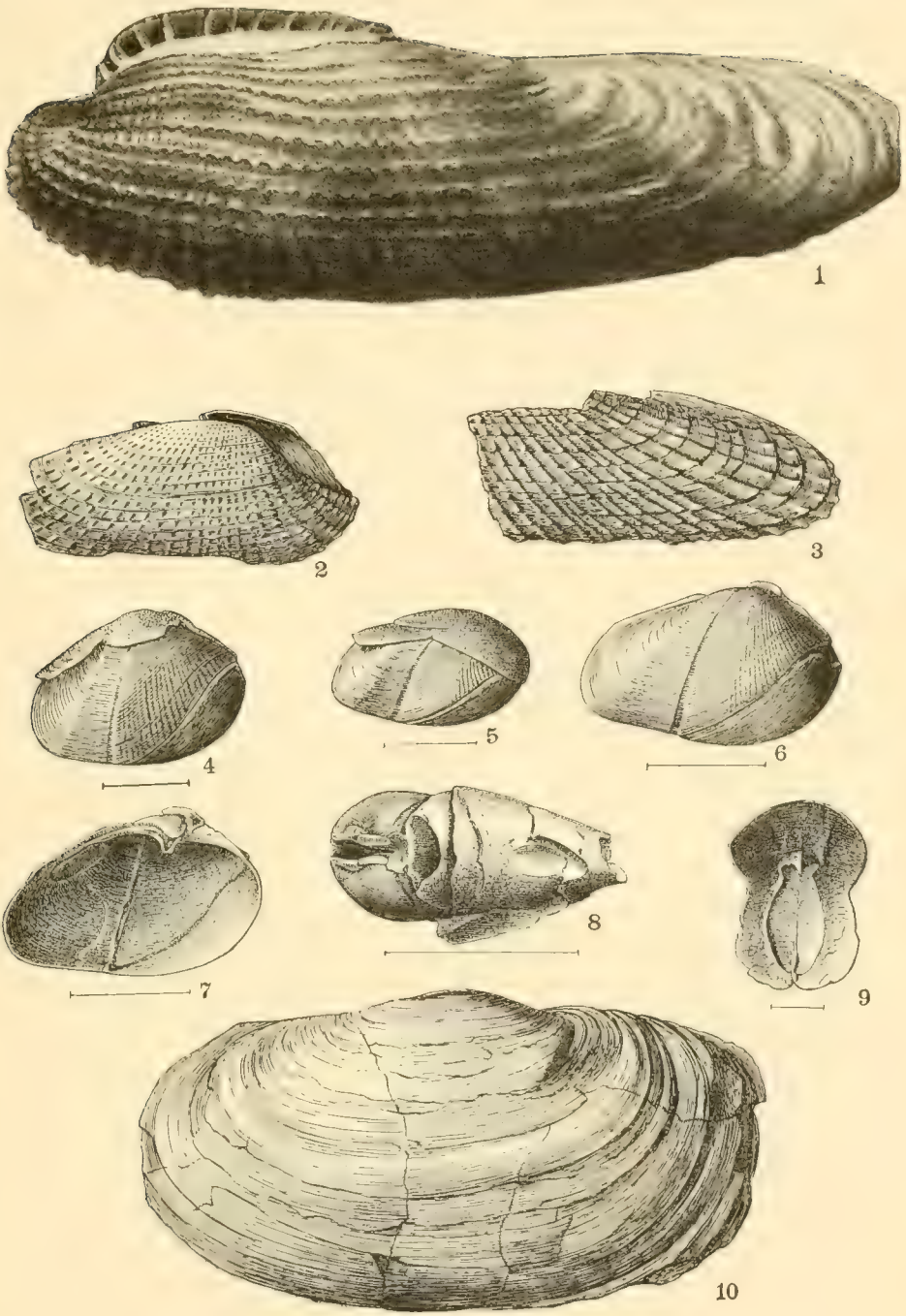
2. Exterior of right valve. St. Mary's River.
3. Exterior of right valve. Same locality.

Figs. 4-9. Martesia ovalis (Say) 275

4. Exterior of right valve and broken protoplax. Drum Point. U. S. National Museum. (After Dall.)
5. Exterior of left valve and protoplax. Jones Wharf.
6. Exterior of right valve. Same locality.
7. Interior of left valve. Same locality.
8. Dorsal view showing gaping anterior and umbonal region projecting from enveloping tube.
9. Interior view of protoplax. Same locality.

Fig. 10. Panopea whitfieldi Dall 276

10. Exterior of right valve. Plum Point.



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1. Exterior of right valve. Plum Point.

Fig. 2. PANOPEA AMERICANA Conrad 278

2. Exterior of left valve. Plum Point.

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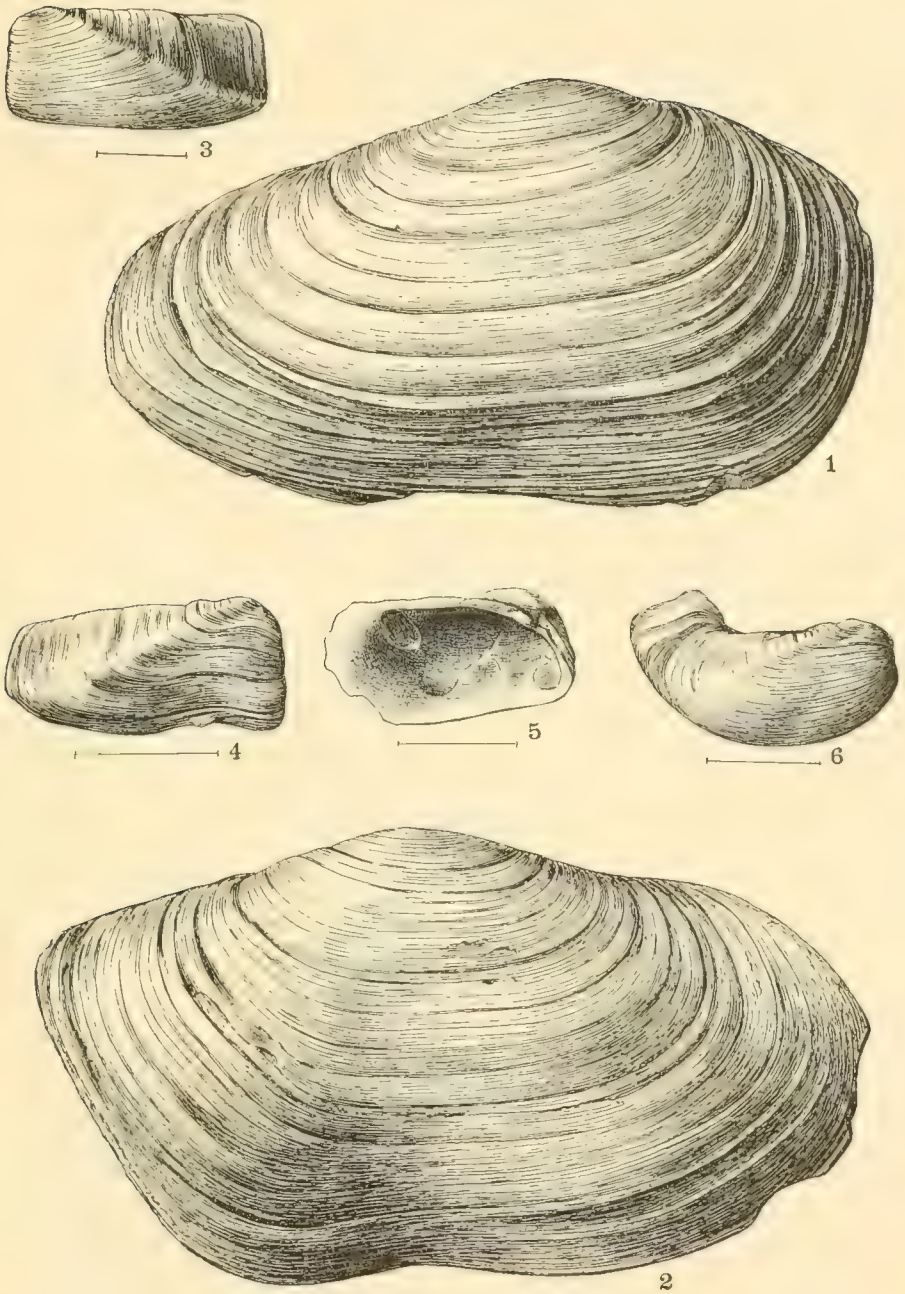
3. Exterior of left valve. Plum Point.
4. Exterior of right valve. Jones Wharf.
5. Interior of left valve. Jones Wharf.
6. Exterior of right valve of one of numerous distorted forms. Chesapeake Beach.



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Figs. 1-3. CORBULA IDONEA Conrad 279

1. Exterior of right valve. Jones Wharf.
2. Interior of right valve of another specimen. Same locality.
3. Interior of left valve. Same locality.

Figs. 4-5. CORBULA ELEVATA Conrad 280

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5. Exterior of right valve. Same locality.

Figs. 6-14. CORBULA INÆQUALIS Say 281

6. Exterior of right valve. Church Hill.
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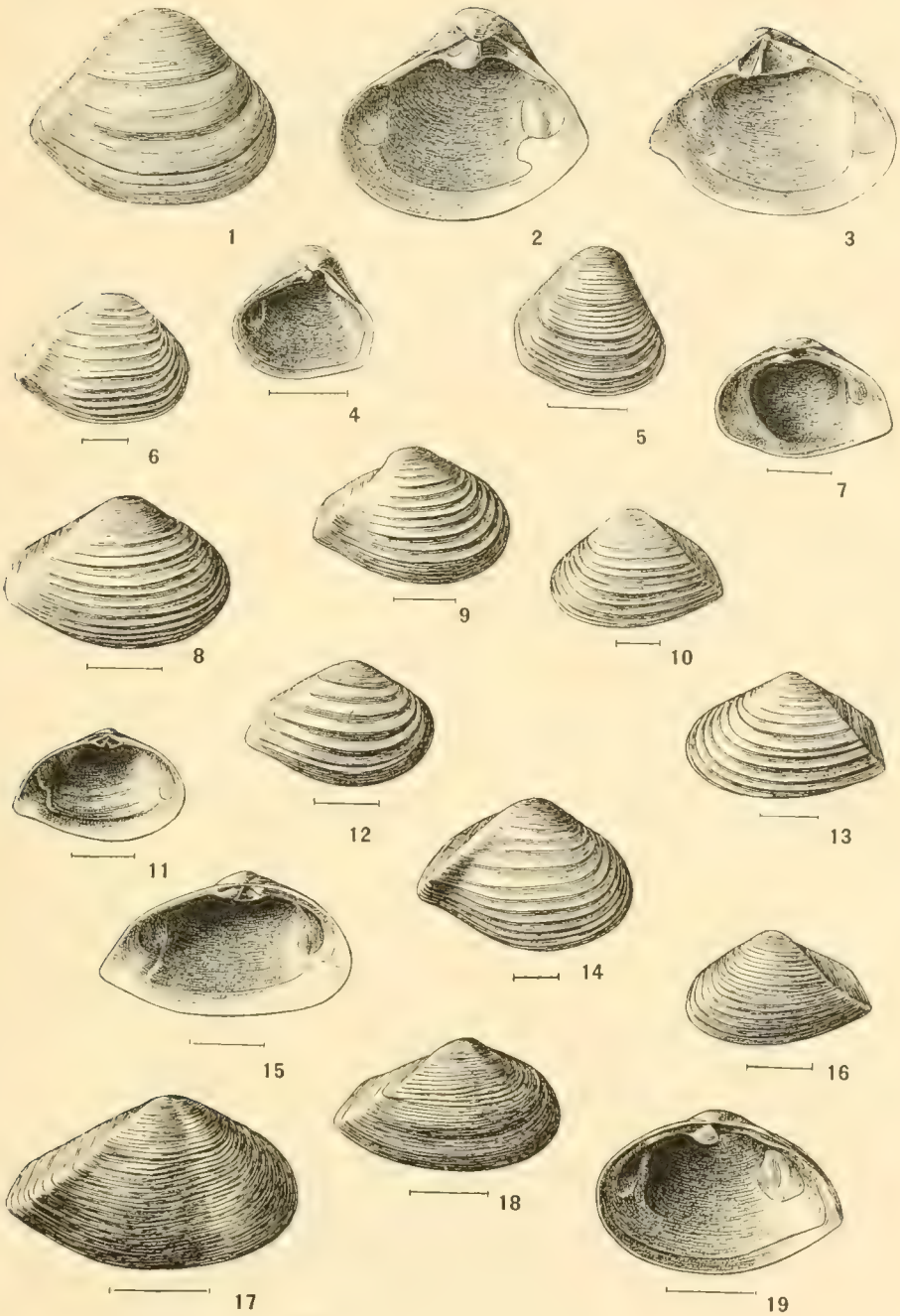
8. Exterior of right valve of large variety. St. Mary's River.
9. Exterior of valve. Jones Wharf.
10. Exterior of left valve. Church Hill.
11. Interior of left valve of coarsely sculptured variety. Plum Point.
12. Exterior of right valve of same individual as shown in Fig. 11.
13. Exterior of left valve. Jones Wharf.
14. Exterior of right valve. Oligocene of Oak Grove, Fla. Type specimen of *C. whitfieldi* Dall. (After Dall.)

Figs. 15-19. CORBULA CUNEATA Say 282

15. Interior of left valve. Jones Wharf.
16. Exterior of left valve. Same locality.
17. Exterior of right valve. Same locality.
18. Exterior of right valve. Same locality.
19. Interior of right valve. Same locality.



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Figs. 1a, 1b, 2. MYA PRODUCTA Conrad 283

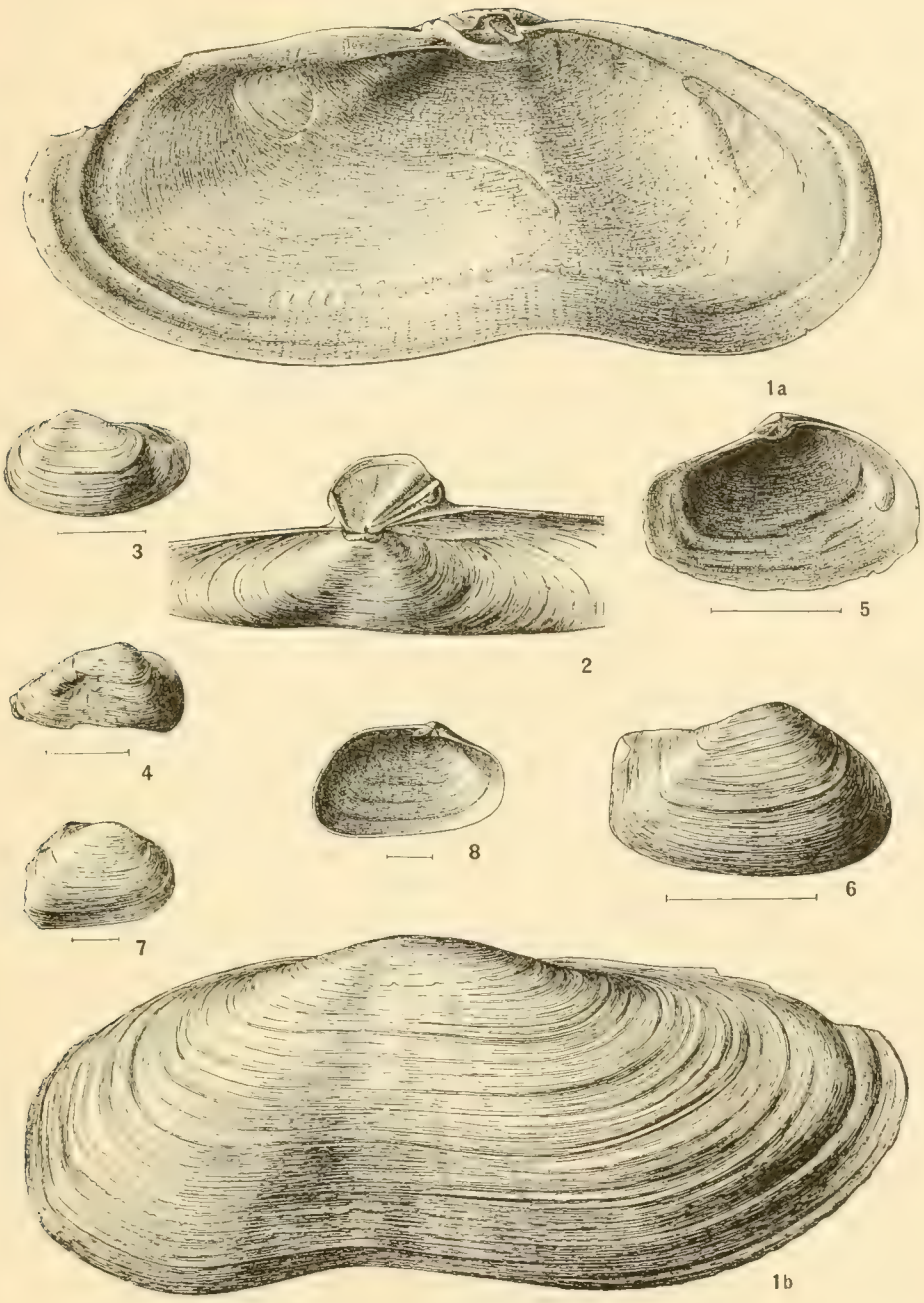
1a. Interior of left valve. Jones Wharf.
1b. Exterior of same valve.
2. Profile of hinge area of same valve.

Figs. 3-6. SPHENIA DUBIA (H. C. Lea) 283

3. Exterior of left valve. Jones Wharf.
4. Exterior of right valve. Jones Wharf.
5. Interior of left valve, large specimen. Jones Wharf.
6. Exterior of right valve, same individual as Fig. 5.

Figs. 7, 8. PARAMYA SUBOVATA Conrad 284

7. Interior of left valve. Two miles south of Governor Run.
8. Exterior broken valve. Jones Wharf.



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Figs. 1-3. Mesodesma mariana n. sp. 285

1. Exterior of right valve. Cove Point.
2. Interior of right valve. Same locality.
3. Interior of left valve. Same locality.

Figs. 4-6. Ervilia planata Dall 285

4. Interior of left valve. Church Hill.
5. Interior of right valve. Same locality.
6. Exterior of left valve. Same locality.

Figs. 7-9. Mactra clathrodon Lea 286

7. Interior of left valve. Cove Point.
8. Exterior of left valve. Same locality.
9. Interior of right valve. Same locality.

Fig. 10. Spisula (Hemimactra) delumbis (Conrad) 286

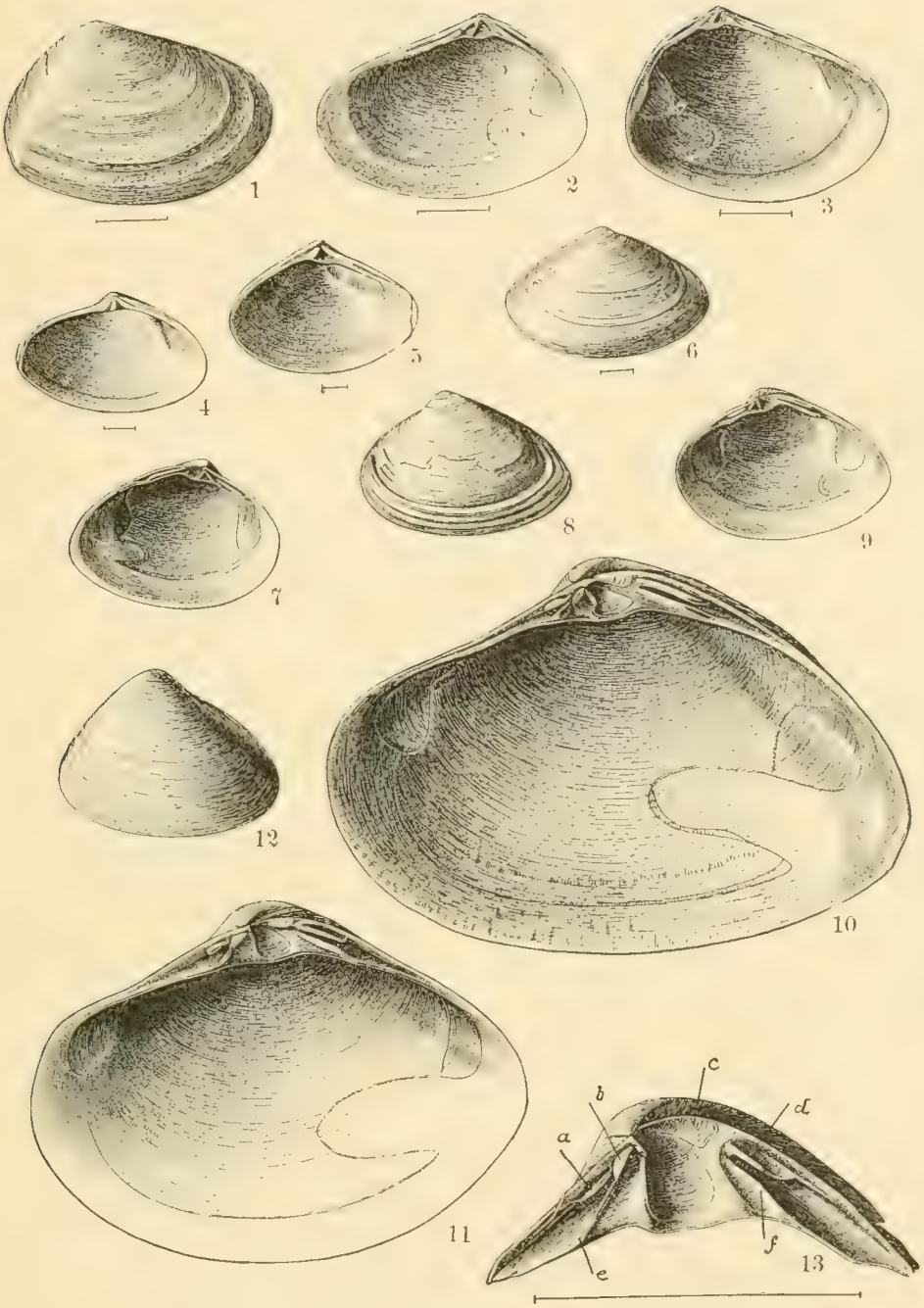
10. Interior of right valve. Suffolk, Va. 96 mm. (After Dall.) × 5/6

Fig. 11. Spisula (Hemimactra) marylandica Dall 287

11. Interior of right valve. 92 mm. (After Dall.) × ¾

Figs. 12, 13. Spisula (Hemimactra) curtidens Dall 288

12. Outline of young shell traced from incremental lines on broken larger valve. 35 mm. (After Dall.) × 5/6
13. Hinge-plate of right valve: *a*, dorsal and *e*, ventral anterior laminae; *b*, anterior arm of cardinal tooth; *c*, ligament scar, without septum below it; *d* and *f*, posterior laminae. 44 mm. (After Dall.)



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Figs. 1-4. Spisula (Hemimactra) subponderosa (d'Orbigny)..... 288

1. Profile of hinge from above, left valve: *a*, anterior lateral; *b*, cardinal tooth; *c*, accessory lamella; *d*, spur with part of the cavity for the sagittal ligament below it; *e*, scar of attachment of ligament; *f*, posterior lateral lamina. 70 mm. (After Dall.)
2. Exterior of right valve. St. Mary's River. × ⅔
3. Interior of left valve. St. Mary's River. × ⅔
4. Hinge-plate of left valve: *a*, dorsal and *e*, ventral posterior laminae; *b*, ligamentary scar not separated from the pit below by a septum; *c*, spur; *f*, accessory lamella; *i*, petaloid cardinal tooth; *d*, anterior lamina with *s*, absorption scar, from central lamina of opposite valve. 70 mm. (After Dall.)

Figs. 5a, 5b. Spisula (Hemimactra) confraga (Conrad) 289

5a. Exterior of left valve of type specimen. Patuxent River. Acad. Nat. Sci., Phila.
5b. Interior of the same valve.

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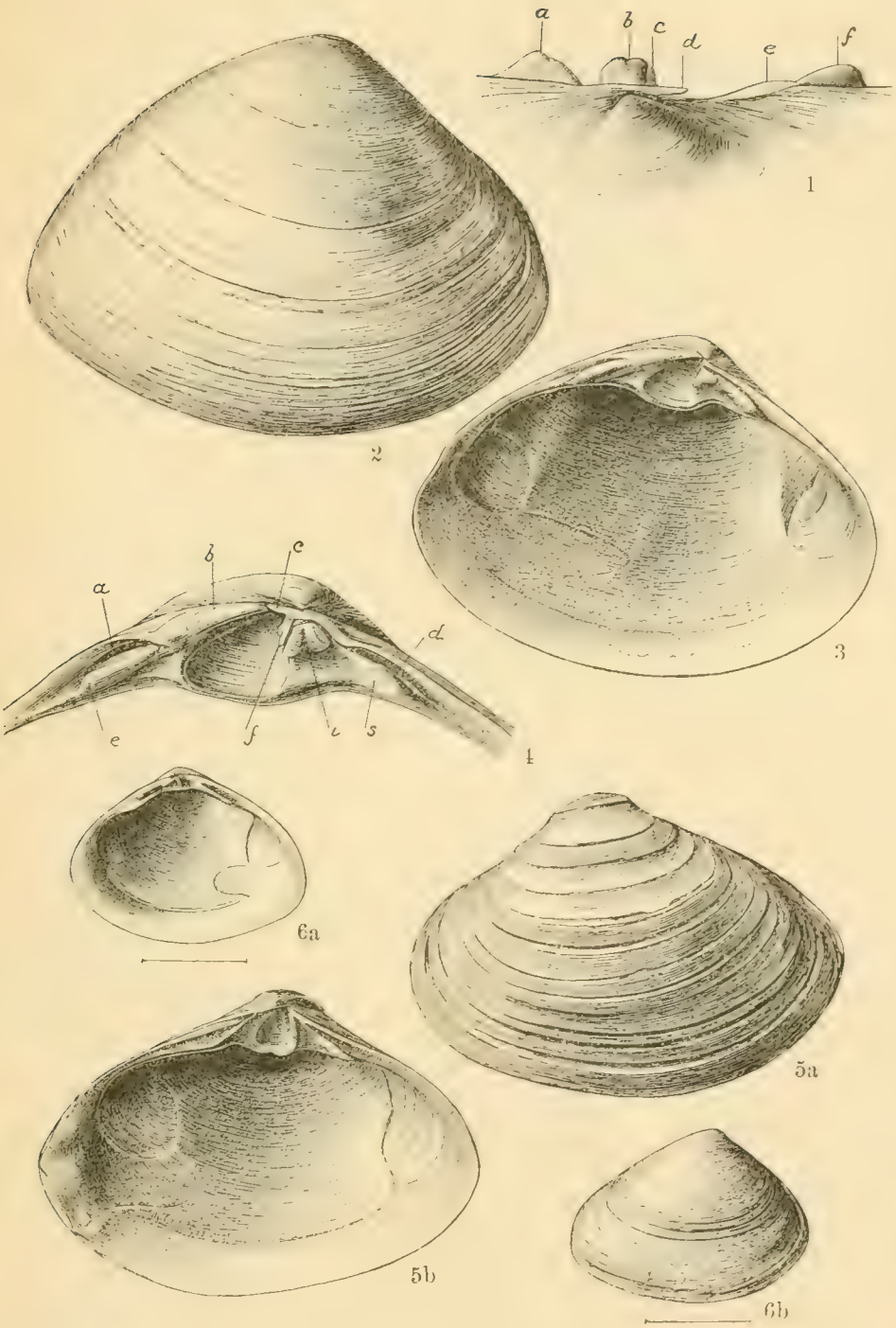
6a. Interior of right valve. Plum Point. U. S. National Museum.
6b. Exterior of the same specimen.



MOLLUSCA—PELECYPODA.

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Fig. 1. Spisula (Hemimactra?) chesapeakensis n. sp. 290

1. Exterior of right valve. 3 miles north of Plum Point. × ⅔

Figs. 2, 3. Ensis directus (Conrad) 291

2. Interior of left valve. Yorktown, Va.
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Figs. 4-6. Ensis ensiformis Conrad..... 292

4. Posterior portion of broken valve. St. Mary's River.
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6. Interior of left valve. York River, Va.

Figs. 7a, 7b. Psammobia gubernatoria n. sp..... 292

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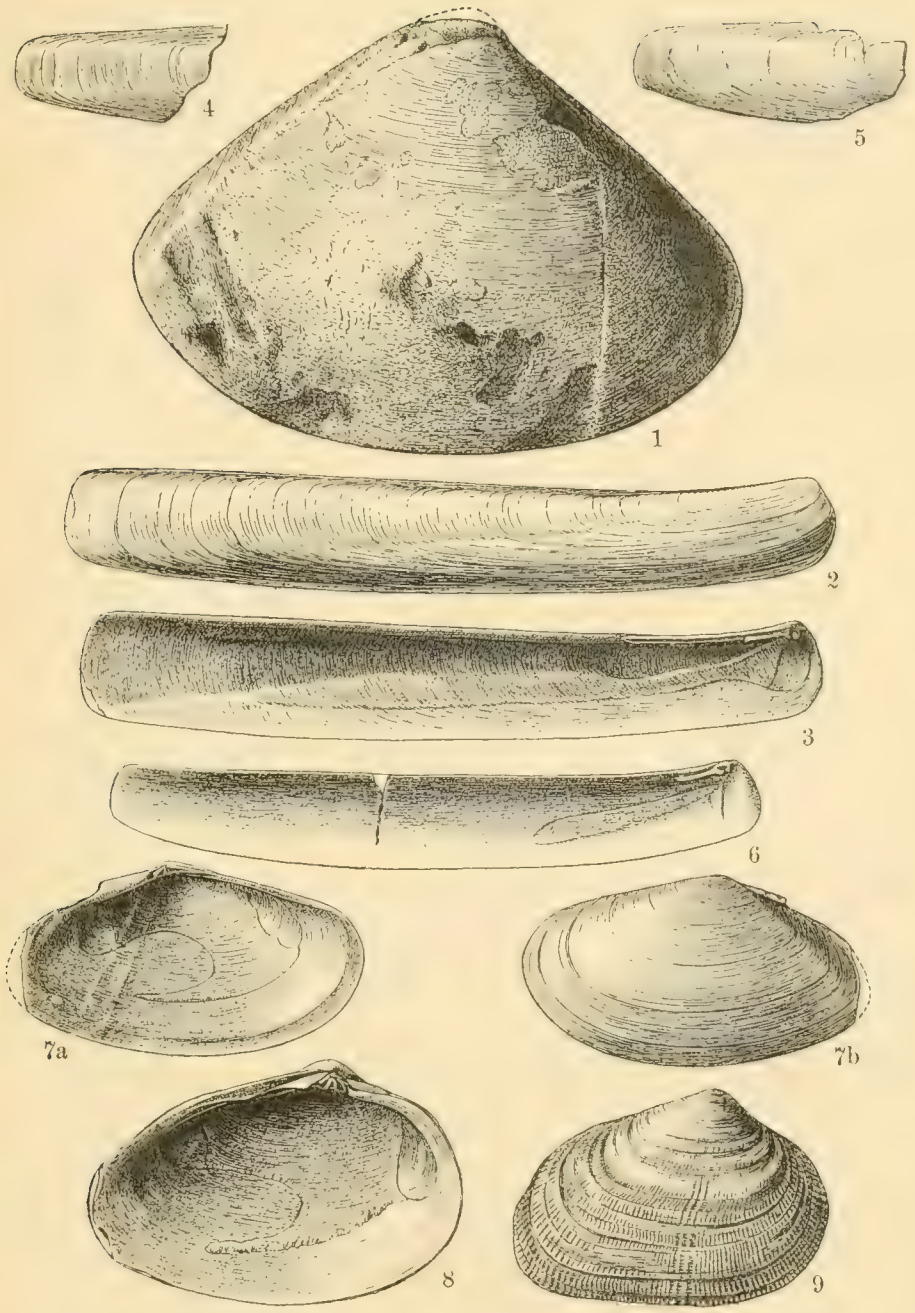
7b. Exterior of same valve.

Figs. 8, 9. Asaphis centenaria (Conrad) 293

8. Interior of left valve. Jones Wharf.
9. Exterior of left valve. Same locality.



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Figs. 1-3. SEMELE CARINATA (Conrad) 294

1. Exterior of right valve. St. Mary's River.
2. Interior of right valve. Same locality.
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Figs. 4, 5a, 5b. SEMELE CARINATA var. COMPACTA Dall..... 294

4. Exterior of right valve. St. Mary's River.
5a. Interior of right valve. Oligocene of Oak Grove, Fla. 16.5 mm. (After Dall.)
5b. Exterior of valve of Fig. 5a. (After Dall.)

Figs. 6-8. SEMELE SUBOVATA Say 295

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Figs. 9a, 9b. ABRA LONGICALLA (Scacchi) 296

9a. Exterior of right valve. Jones Wharf.
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Fig. 10. ABRA MARYLANDICA n. sp. 296

10. Interior of left valve. Plum Point.

Figs. 11, 12. CUMINGIA MEDIALIS Conrad..... 297

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Fig. 13. TELLINA AEQUISTRIATA Say 297

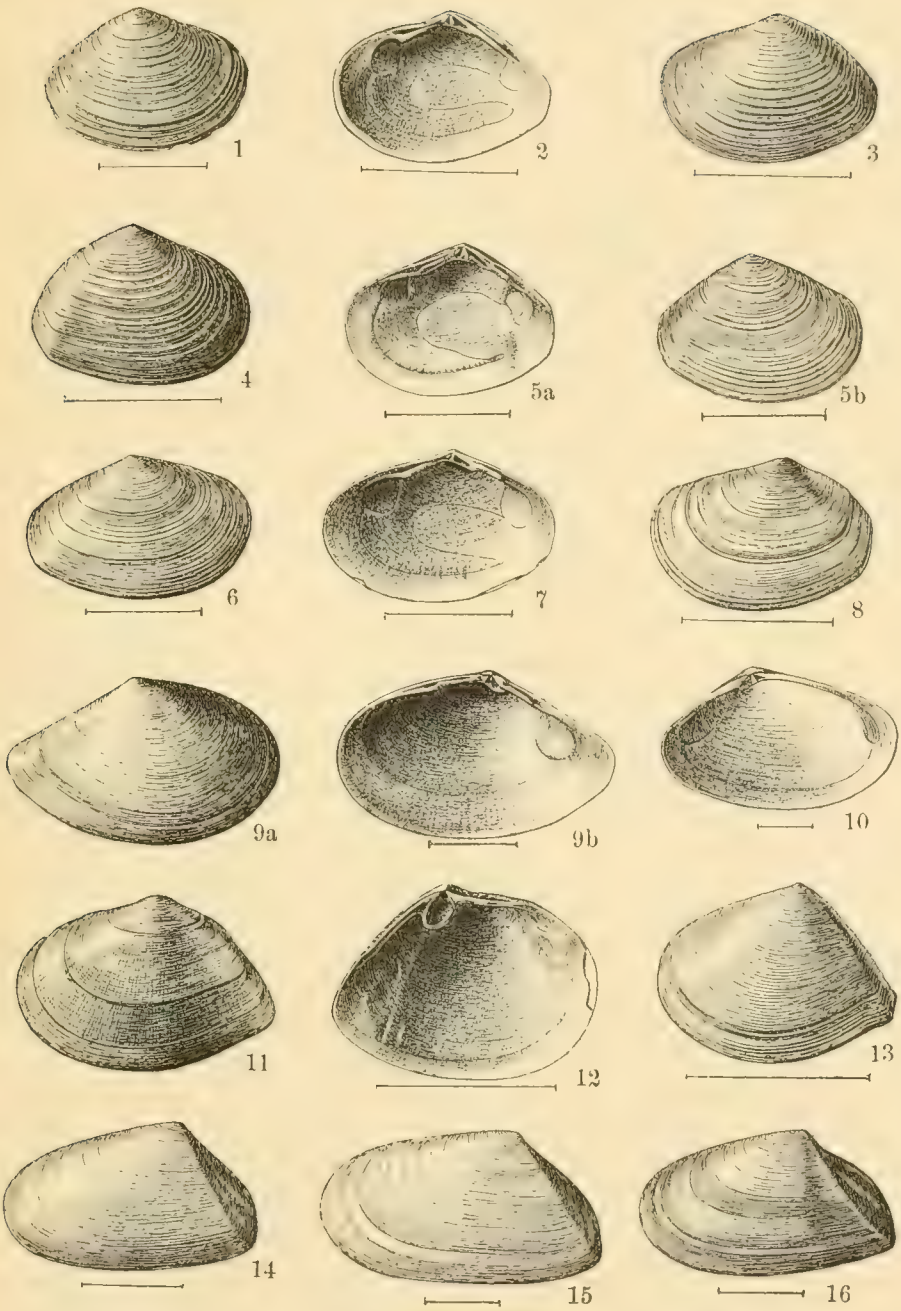
13. Exterior of left valve. Jones Wharf. (?)

Fig. 14. TELLINA (ANGULUS) DECLIVIS Conrad 298

14. Exterior of left valve. Plum Point.

Figs. 15, 16. TELLINA (ANGULUS) PRODUCTA Conrad..... 299

15. Exterior of left valve. Plum Point.
16. Exterior of left valve. Cove Point.



MOLLUSCA—PELECYPODA.

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Fig. 1. TELLINA (ANGULUS) DUPLINIANA Dall 299

1. Exterior of left valve. Duplin Co., N. C.; length 12.5 mm. (After Dall.)

Fig. 2. TELLINA (ANGULUS) UMBRA Dall 300

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Figs. 3, 4. MACOMA LENIS (Conrad) 301

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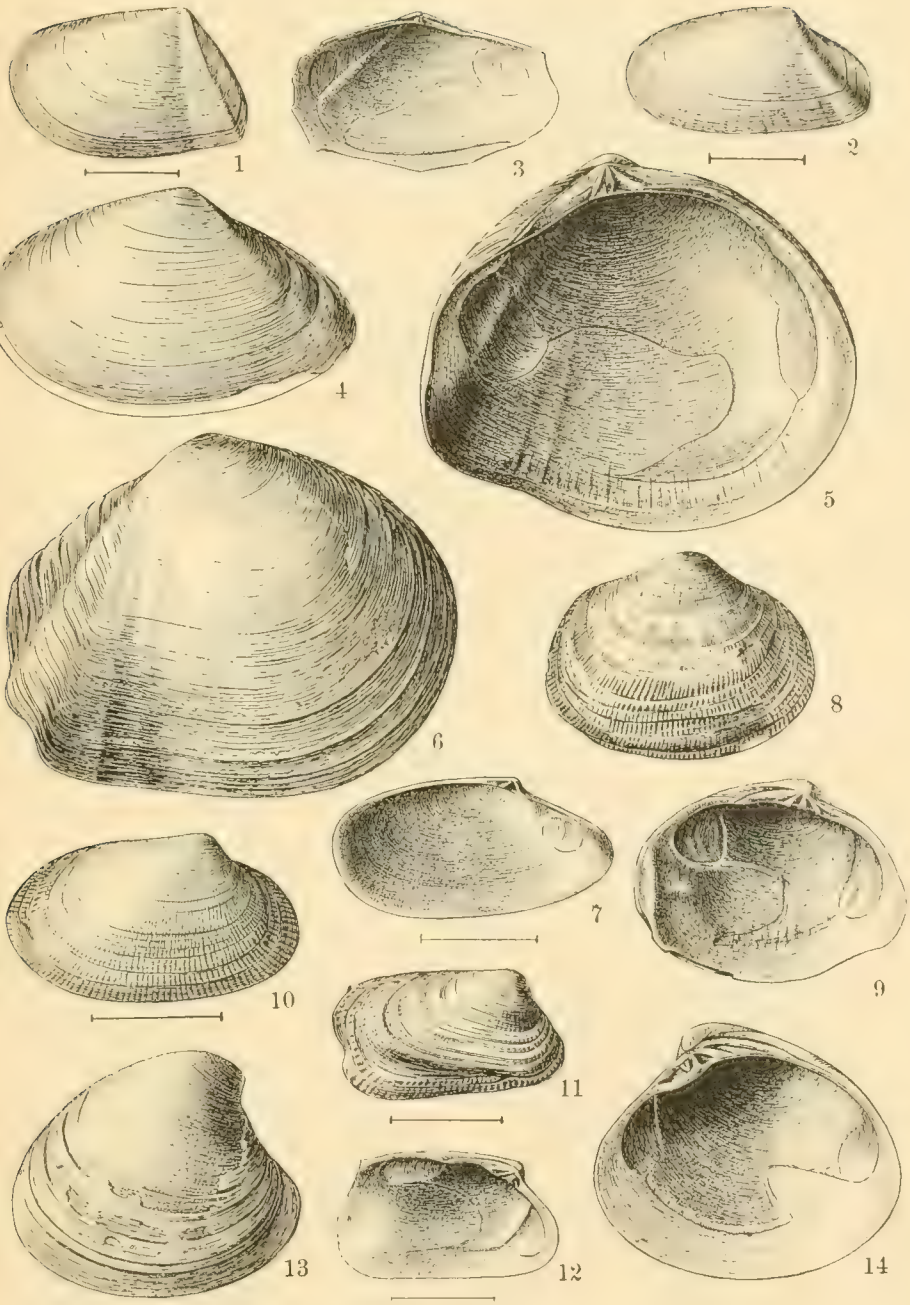
12. Left valve. Same locality.

Figs. 13, 14. CALLOCARDIA (AGRIOPOMA) SAYANA (Conrad) 313

13. Exterior of right valve. Jones Wharf.
14. Interior of right valve. Same locality.



MOLLUSCA—PELECYPODA.

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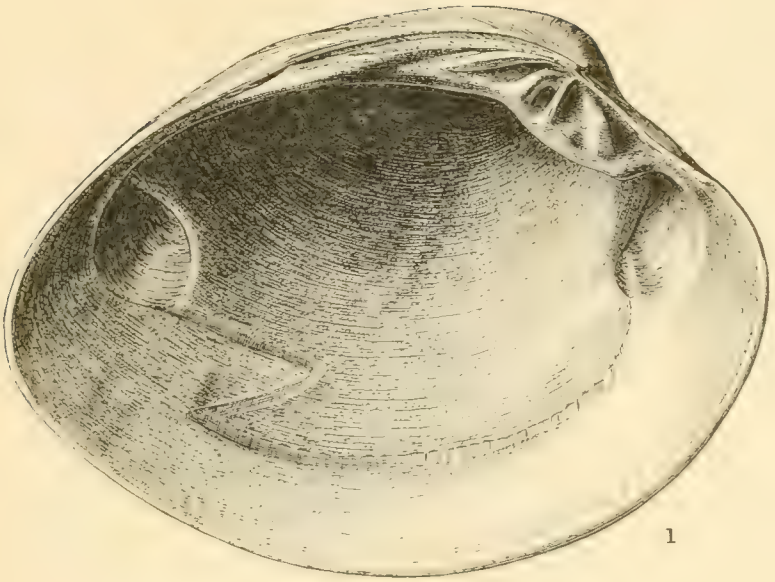
Figs. 1, 2. MACROCALLISTA MARYLANDICA (Conrad) 311

1. Interior of left valve. Jones Wharf.
2. Exterior of right valve. Same locality.



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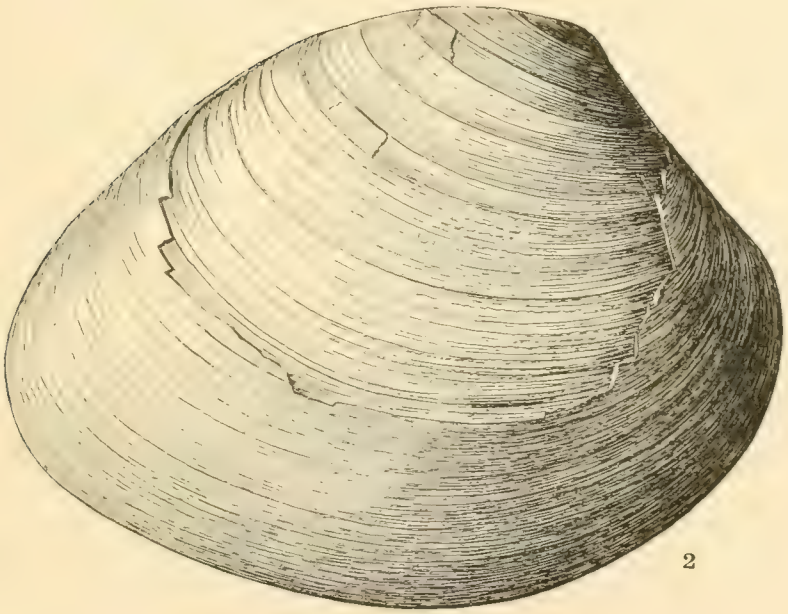

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1. Exterior of right valve. St. Mary's River.
2. Interior of right valve. Same locality.
3. Exterior of right valve. Same locality.

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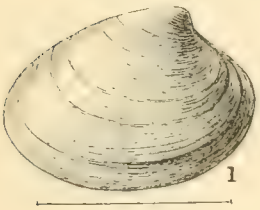
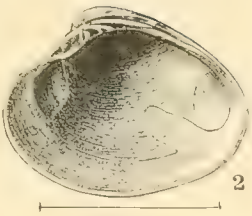
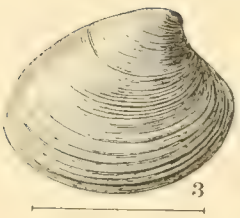
4. Interior of right valve. Plum Point.
5. Exterior of left valve. Same locality.
6. Exterior of right valve. Same locality.

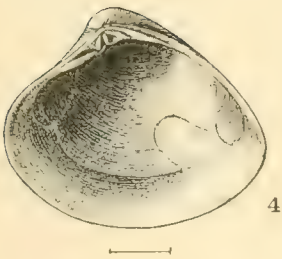
Figs. 7, 8. Venus ducateli Conrad 304

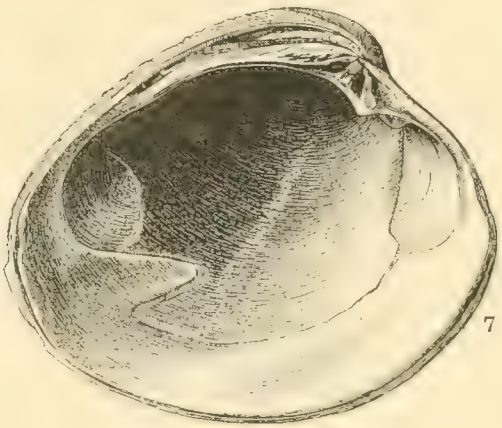
7. Interior of left valve. Church Hill.
8. Exterior of right valve. Same locality.

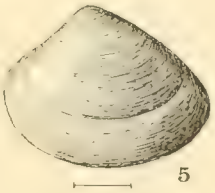


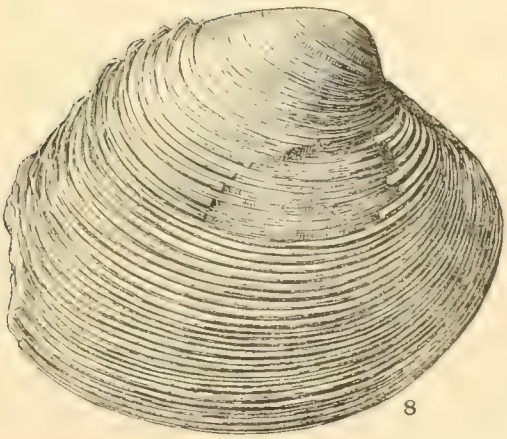


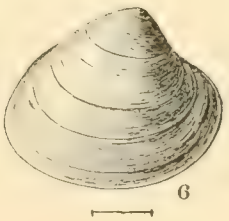












MOLLUSCA—PELECYPODA.

PLATE LXXVI.

PAGE

Figs. 1-3. CHIONE ALVEATA (Conrad) 310

1. Interior of right valve. St. Mary's River.
2. Exterior of right valve. Same locality.
3. Exterior of right valve. Same locality.

Figs. 4, 5. VENUS RILEYI Conrad 304

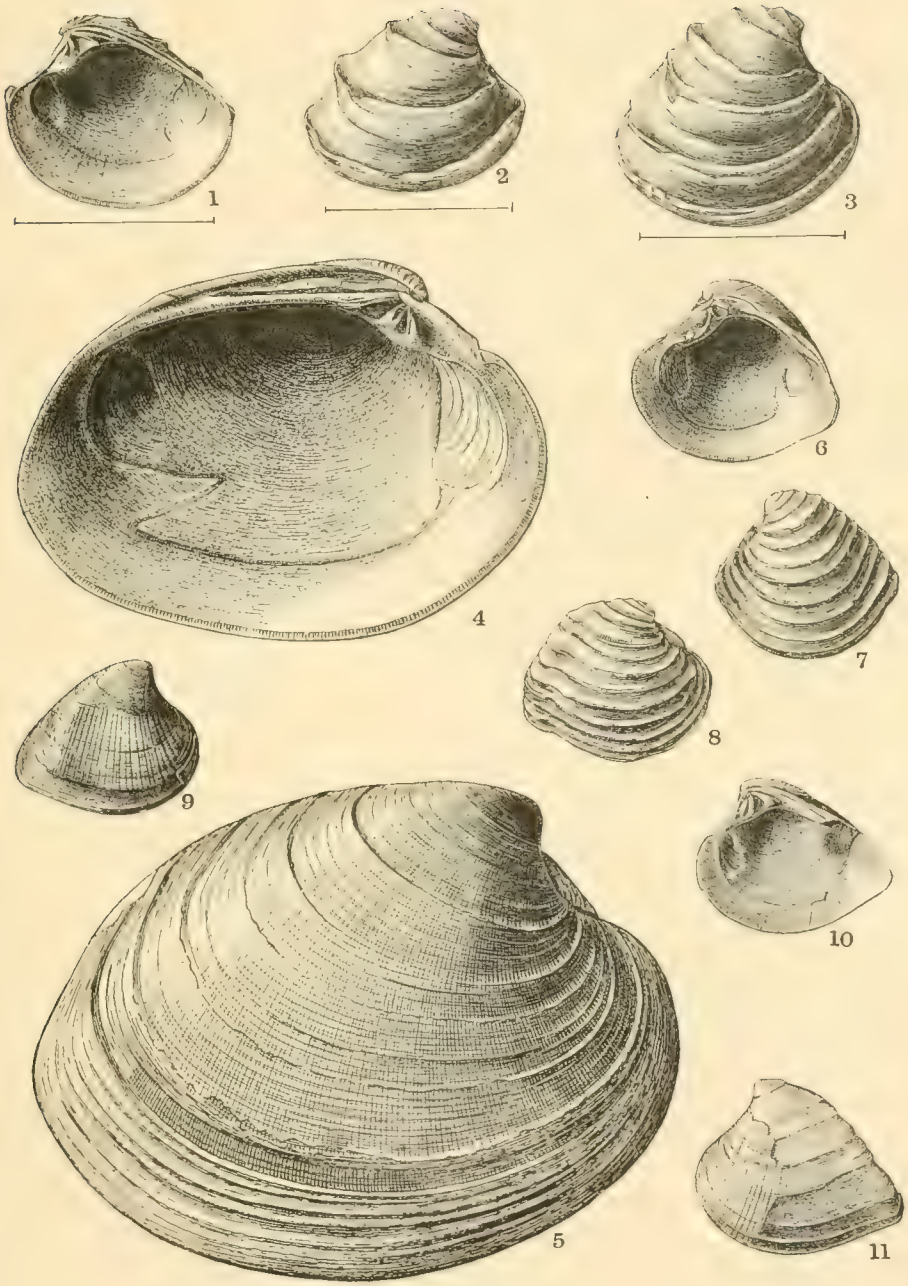
4. Interior of left valve. Plum Point.
5. Exterior of right valve. Same locality.

Figs. 6-8. CYTHEREA (ANTIGONA) STAMINEA Conrad 314

6. Interior of right valve. Plum Point.
7. Exterior of left valve. Same locality.
8. Exterior of right valve. Same locality.

Figs. 9-11. CHIONE PARKERIA n. sp. 310

9. Exterior of right valve. Two miles south of Parker's Creek.
10. Interior of right valve. Same locality.
11. Exterior of left valve. Same locality.



MOLLUSCA—PELECYPODA.

PLATE LXXVII.

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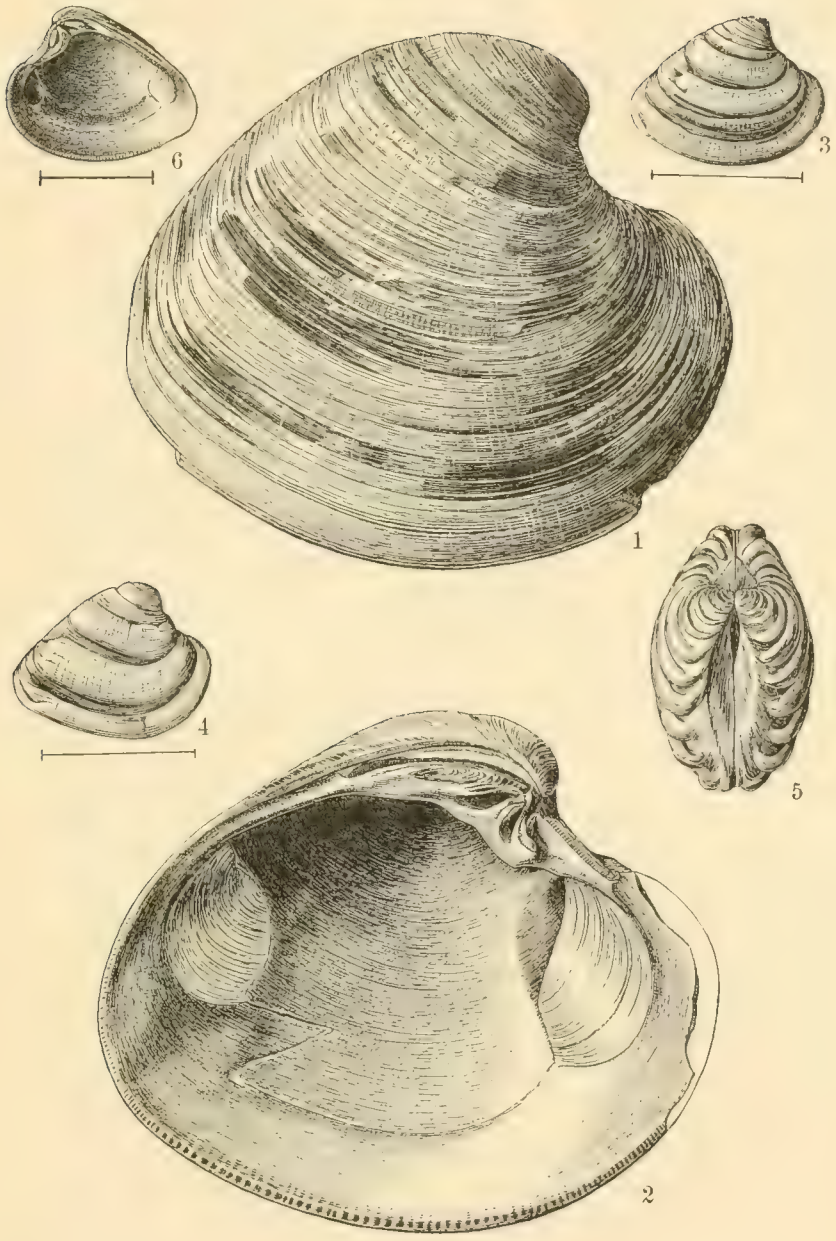
Figs. 1, 2. VENUS CAMPECHIENSIS var. MORTONI (Conrad) 307

1. Exterior of right valve. Cove Point.
2. Interior of left valve. Same locality.

Figs. 3-6. CHIONE LATILIRATA (Conrad) 309

3. Exterior of right valve. Plum Point.
4. Exterior of right valve. Same locality.
5. Dorsal view. The Pliocene of the Waccamaw beds, S. C., length 34 mm. (After Dall.)
6. Interior view of right valve. Plum Point.



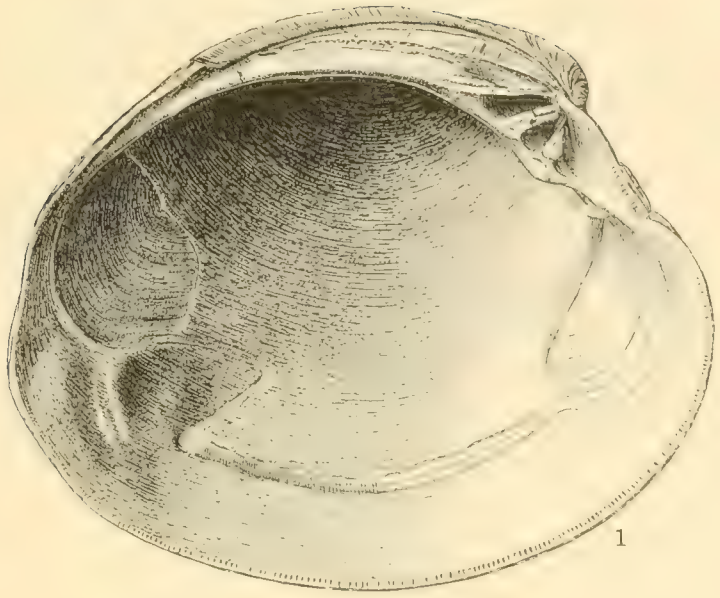
MOLLUSCA—PELECYPODA.

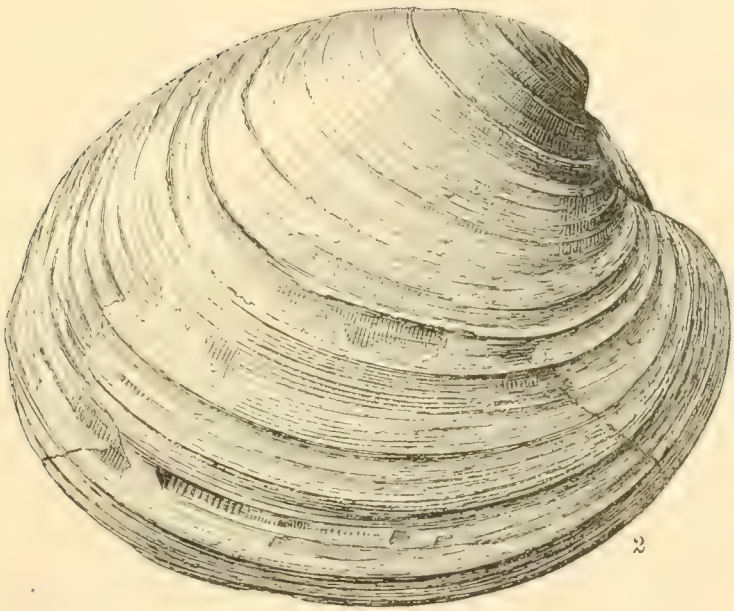
PLATE LXXVIII.

PAGE

Figs. 1, 2. VENUS MERCENARIA Linné..... 305

1. Interior of left valve. Plum Point.
2. Exterior of right valve. Same locality.





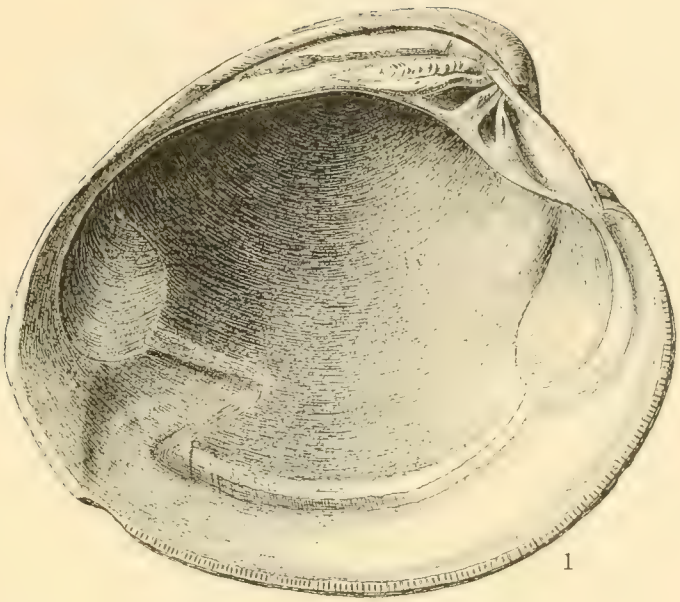
MOLLUSCA—PELECYPODA.

PLATE LXXIX.

PAGE

Figs. 1, 2. VENUS PLENA (Conrad) 306

1. Interior of left valve. Governor's Run.
2. Exterior of right valve. Same locality.



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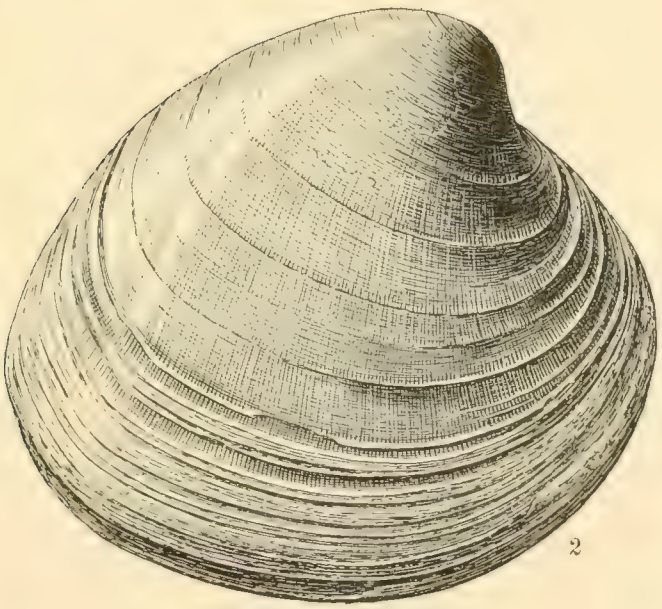

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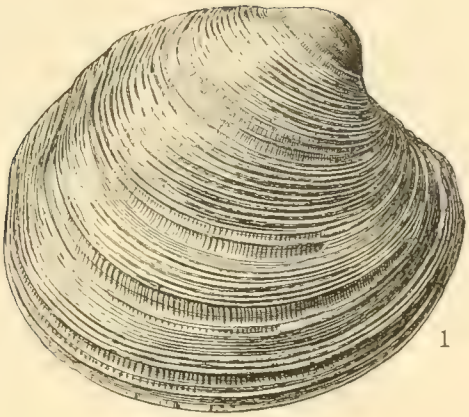
MOLLUSCA—PELECYPODA.

PLATE LXXX.

PAGE

Fig. 1. VENUS CAMPECHIENSIS var. CAPAX (Conrad) 308
1. Exterior of right valve. Cordova.

Fig. 2. VENUS CAMPECHIENSIS var. TETRICA (Conrad) 307
2. Exterior of right valve. St. Mary's River.



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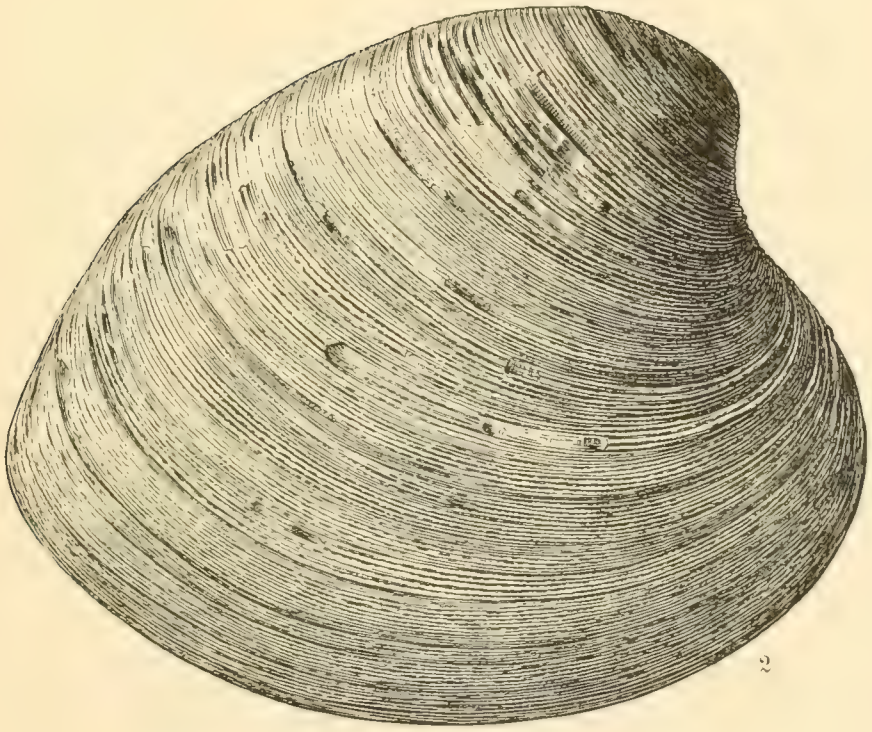

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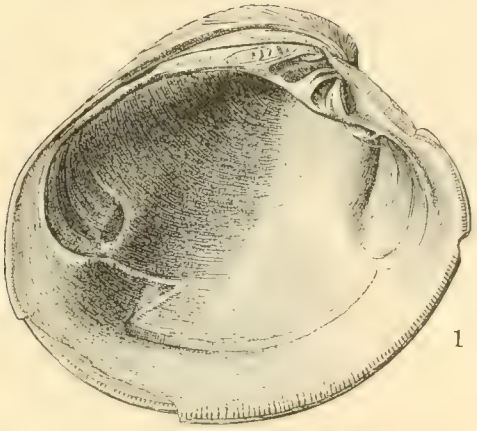
MOLLUSCA—PELECYPODA.

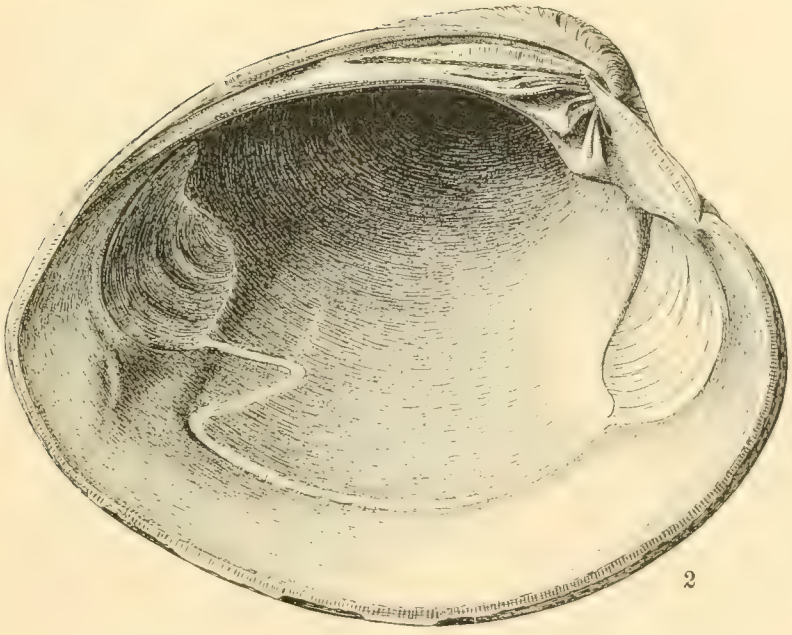
PLATE LXXXI.

PAGE

Fig. 1. VENUS CAMPECHIENSIS var. CAPAX (Conrad) 308
1. Interior of left valve. Cordova.

Fig. 2. VENUS CAMPECHIENSIS var. TETRICA (Conrad) 307
2. Interior of left valve. St. Mary's River.





MOLLUSCA—PELECYPODA.

PLATE LXXXII.

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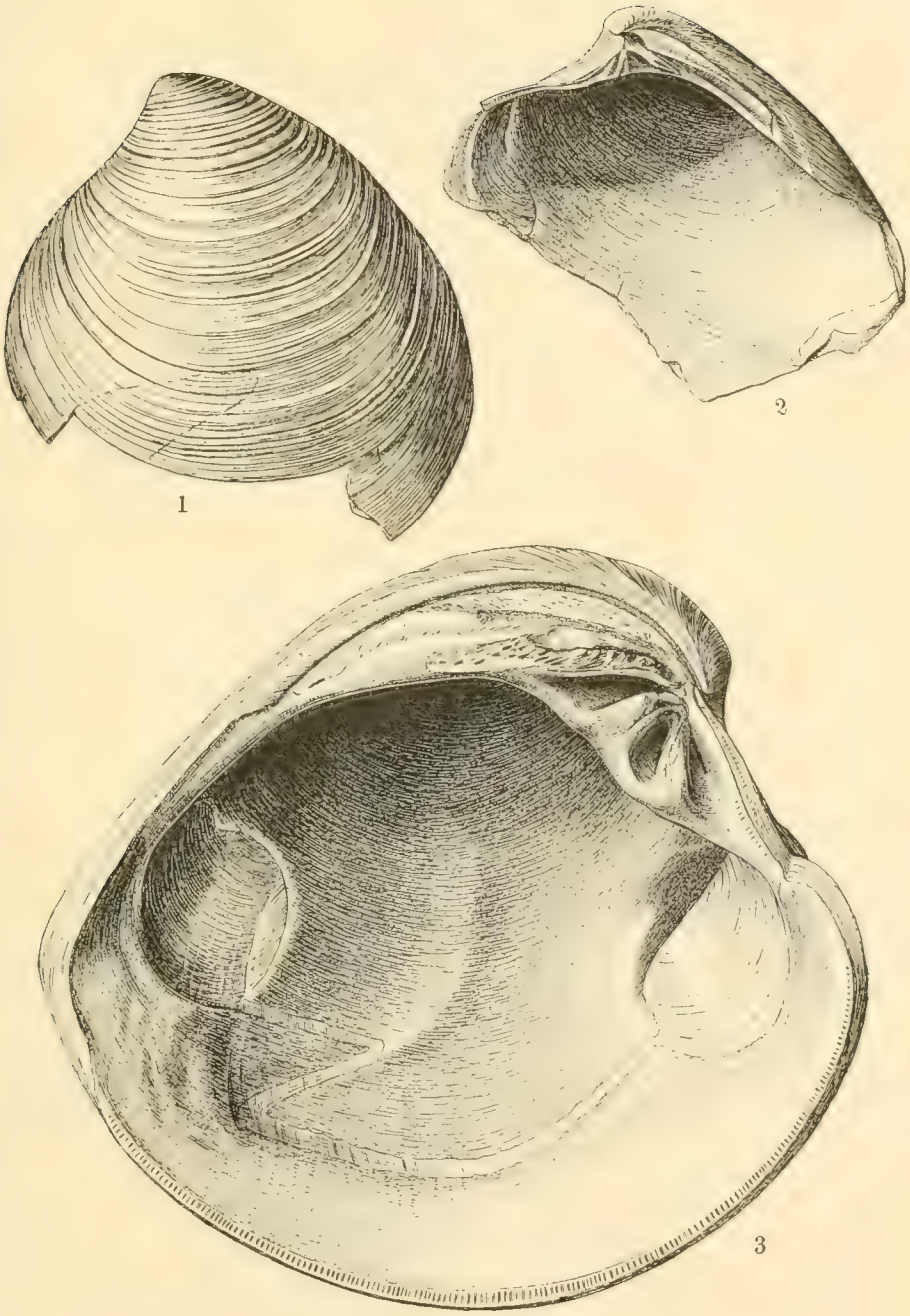
Figs. 1, 2. CLEMENTIA INOCERIFORMIS (Wagner) 315

1. Exterior of left valve. Cove Point.
2. Interior of broken right valve. Same locality.

Fig. 3. VENUS CAMPECHIENSIS var. CUNEATA (Conrad) 308

3. Interior of left valve. Jones Wharf.



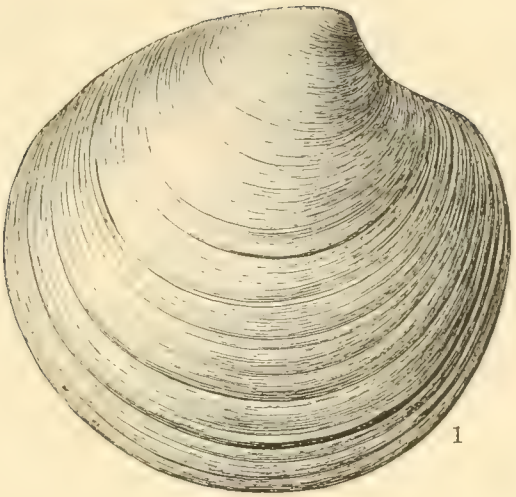
MOLLUSCA—PELECYPODA.

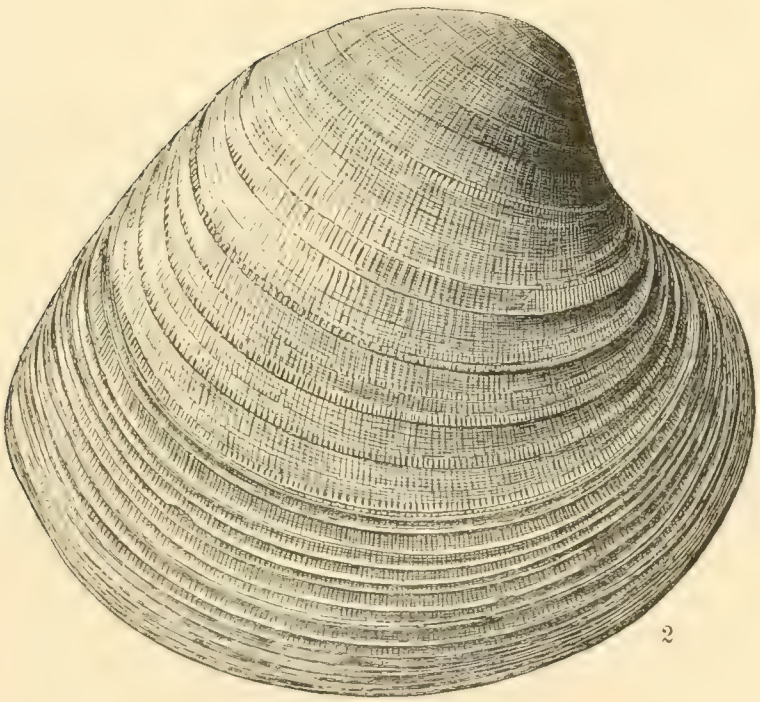
PLATE LXXXIII.

PAGE

Fig. 1. Dosinia acetabulum Conrad 315
1. Exterior of right valve. St. Mary's River.

Fig. 2. Venus campechiensis var. cuneata (Conrad) 308
2. Exterior of right valve. Jones Wharf.





MOLLUSCA—PELECYPODA.

PLATE LXXXIV.

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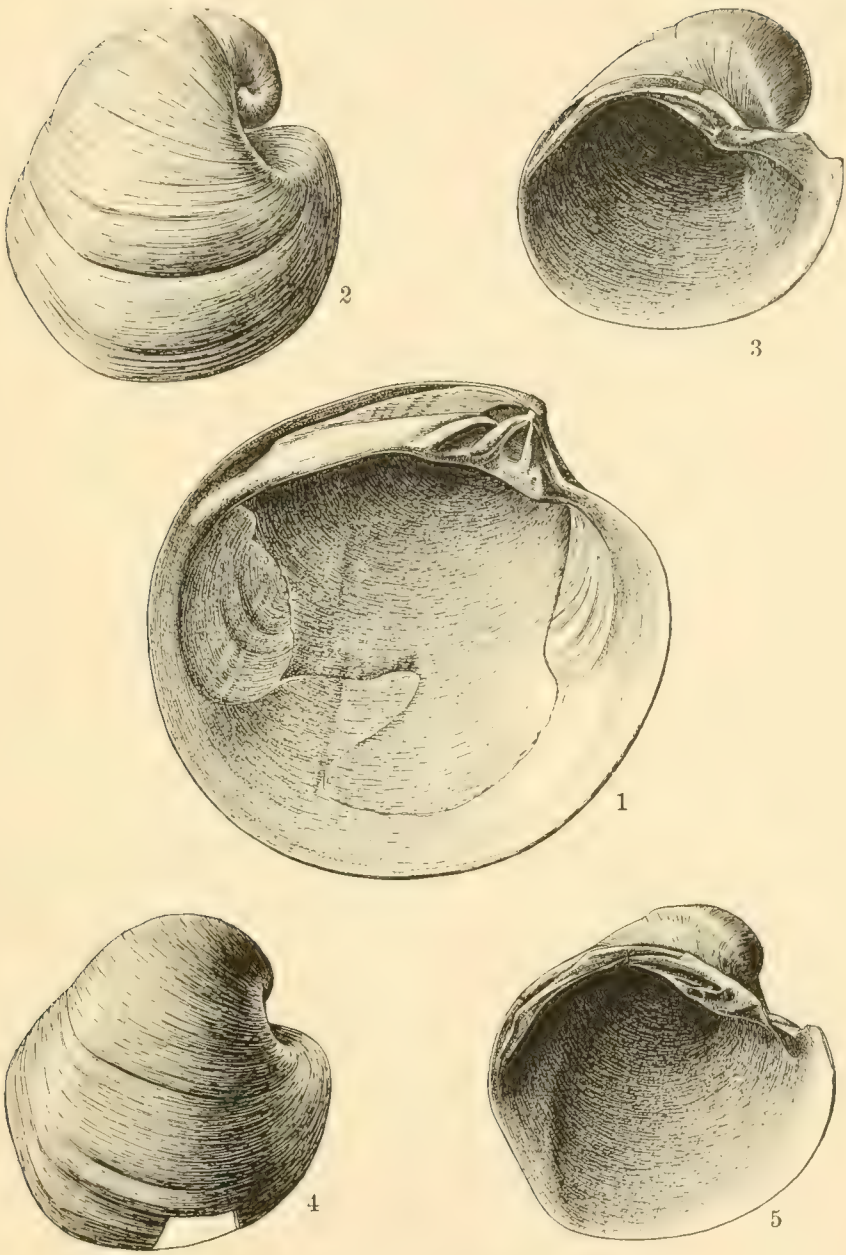
Fig. 1. Dosinia acetabulum Conrad 315
1. Interior of left valve. St. Mary's River.

Figs. 2, 3. Isocardia markoëi Conrad..... 316
2. Exterior of right valve. Plum Point.
3. Interior of left valve. Same locality.

Figs. 4, 5. Isocardia mazlea n. sp. 317
4. Exterior of right valve. Plum Point.
5. Interior of left valve. Same locality.



MOLLUSCA—PELECYPODA.

PLATE LXXXV.

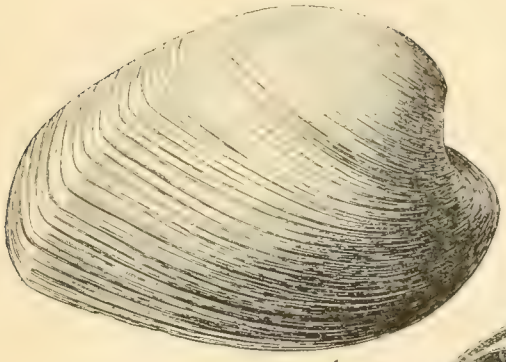
PAGE

Figs. 1, 2. Isocardia ignolea n. sp. 318

1. Exterior of right valve. Cove Point?
2. Interior of left valve of same individual.

Figs. 3, 4. Isocardia fraterna Say 317

3. Exterior of right valve. Jones Wharf.
4. Interior of left valve. Same locality.



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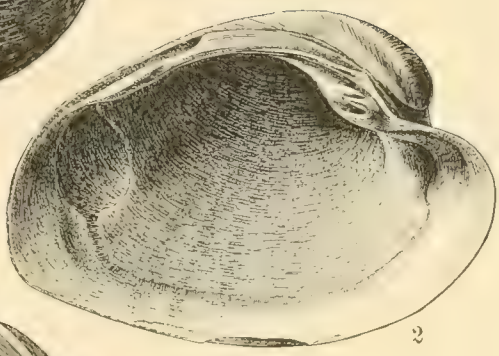

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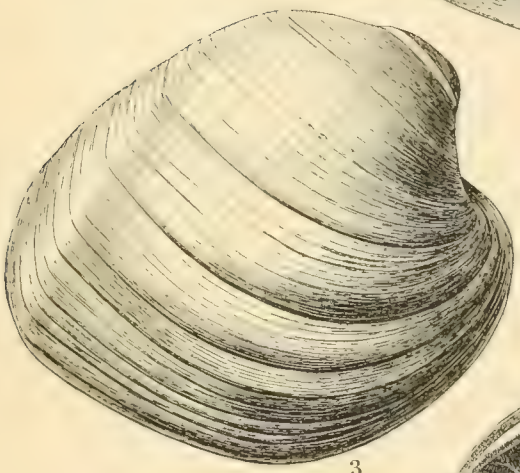

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MOLLUSCA—PELECYPODA.

PLATE LXXXVI.

PAGE

Fig. 1. Cardium (Cerastoderma) laqueatum Conrad 319
1. Exterior of left valve. Jones Wharf. × ⅔

Fig. 2. Cardium (Cerastoderma) leptopleurum Conrad 320
2. Exterior of right valve. Plum Point.

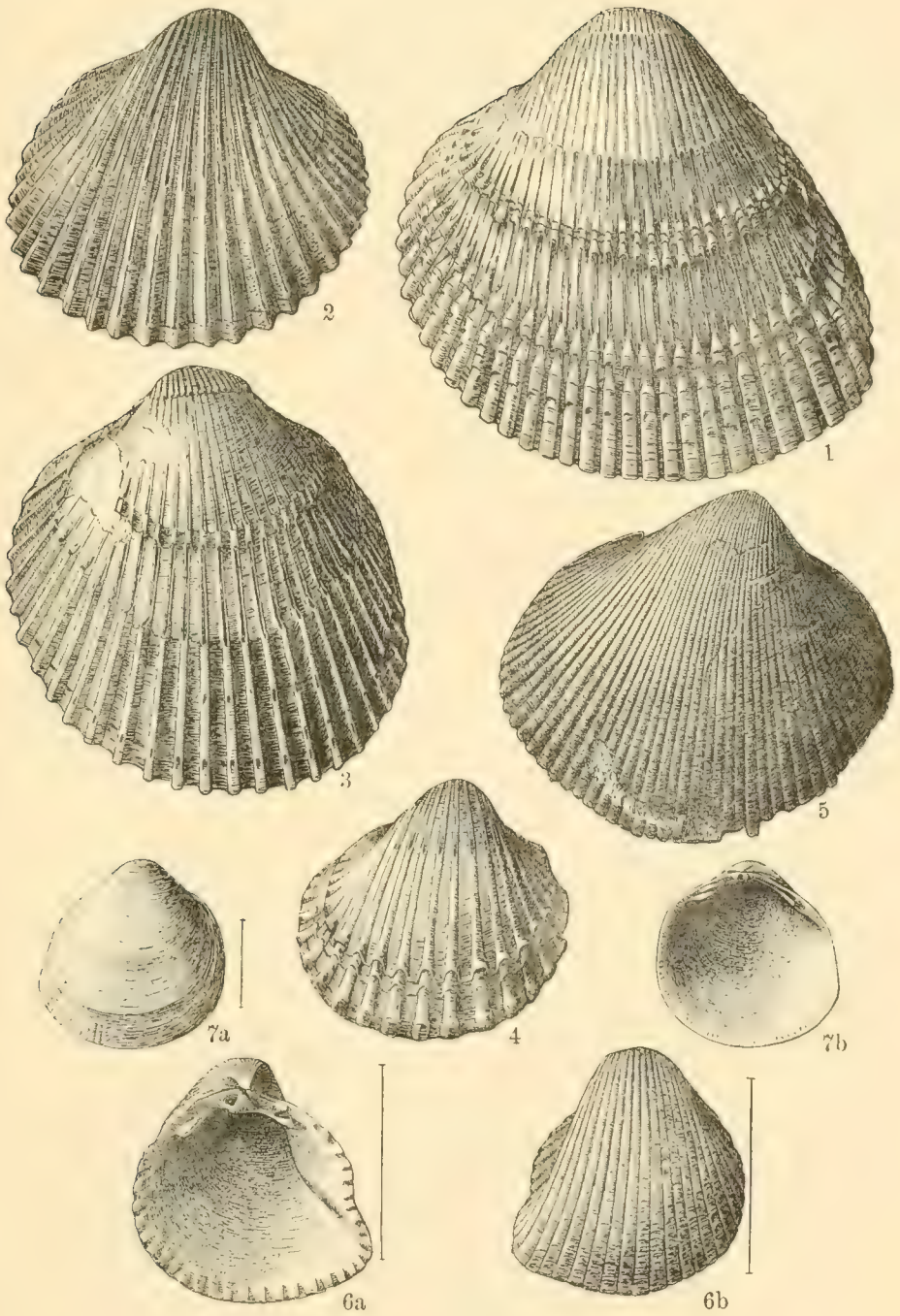
Fig. 3. Cardium (Cerastoderma) craticuloide Conrad 320
3. Exterior of left valve. Plum Point.

Fig. 4. Cardium (Cerastoderma) calvertensium n. sp..... 321
4. Exterior of right valve. Governor's Run (lower bed).

Fig. 5. Cardium (Cerastoderma) patuxentium n. sp. 322
5. Exterior of right valve. White's Landing.

Figs. 6a, 6b. Cardium (Fragum) medium Linné..... 322
6a. Interior of right valve. St. Mary's River. U. S. National Museum.
6b. Exterior of the same valve.

Figs. 7a, 7b. Cardium (Lævicardium) mortoni Conrad..... 323
7a. Exterior of right valve. Jones Wharf. U. S. National Museum.
7b. Interior of the same valve.



MOLLUSCA—PELECYPODA.

PLATE LXXXVII.

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Figs. 1-4. Solecardia (Spaniorinus) cossmanni Dall 323

1. Interior of right valve. Miocene of Virginia. U. S. National Museum. (After Dall.)
1a. Hinge of left valve. Same locality and collection. (After Dall.)
2. Interior of right valve. Cove Point.
3. Interior of left valve. Same locality.
4. Exterior of right valve. Same locality.

Figs. 5a, 5b. Sportella whitfieldi Dall 324

5a. Interior of right valve. Plum Point.
5b. Exterior of same valve.

Fig. 6. Sportella pelex Dall 325

6. Interior of right valve. Miocene of Virginia. U. S. National Museum. (After Dall.)

Fig. 7. Sportella petropolitana Dall 325

7. Interior of right valve. Petersburg, Virginia. U. S. National Museum. (After Dall.)

Figs. 8-10. Sportella recessa n. sp 326

8. Interior of left valve. Cove Point.
9. Exterior of left valve. Same locality.
10 Interior of right valve. Same locality. U. S. National Museum.

Fig. 11. Sportella patuxentia n. sp..... 326

11. Interior of right valve. Cove Point.

Figs. 12a-13. Hindsiella acuta Dall 326

12a. Interior of left valve. St. Mary's River.
12b. Exterior of same specimen.
13. Interior of left valve. Miocene of North Carolina. U. S. National Museum.

Figs. 14, 15. Erycina (Pseudopythina?) americana Dall..... 329

14. Exterior of right valve. Calvert Cliffs. U. S. National Museum. (After Dall.)

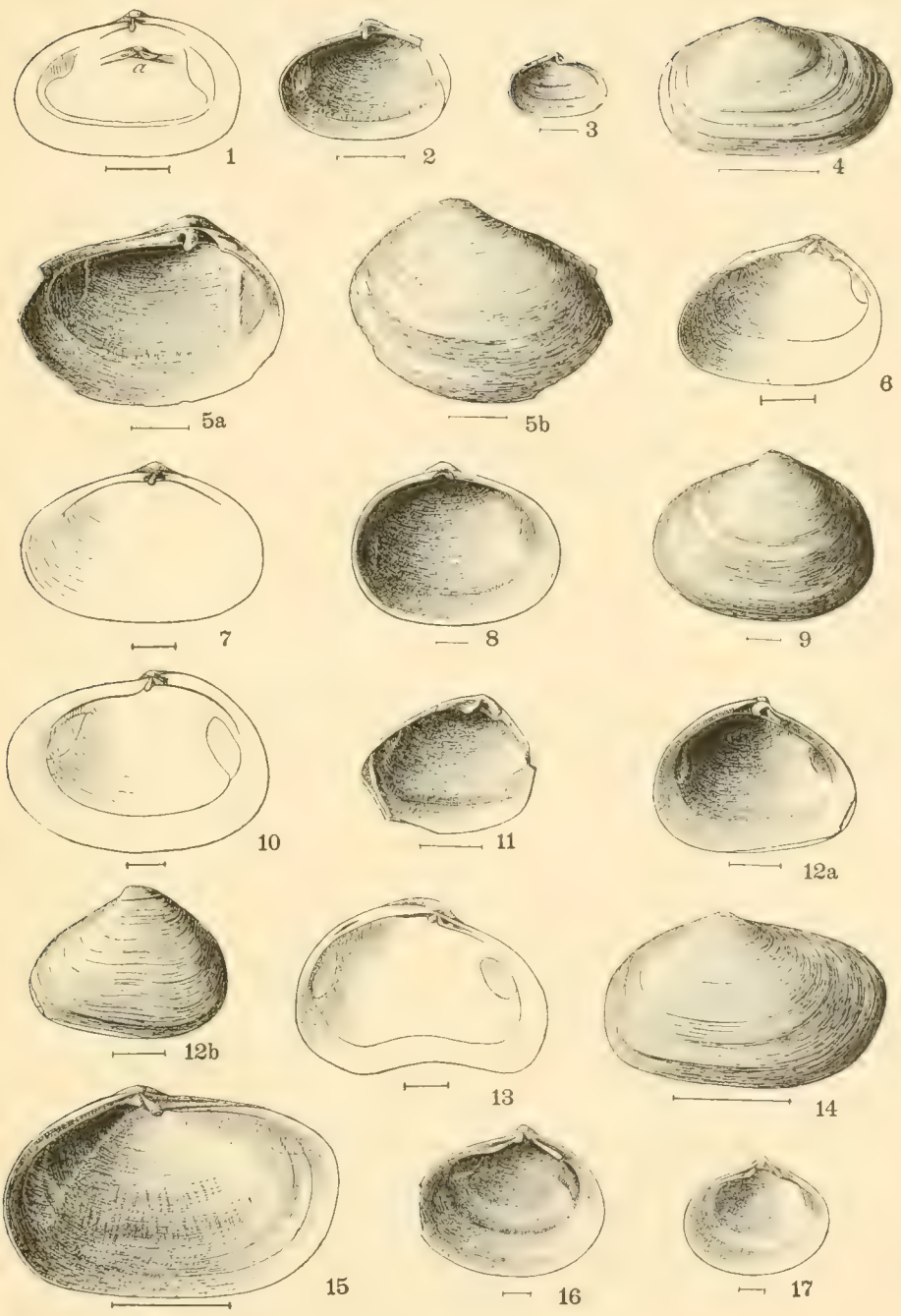
15. Interior of left valve. Same locality and collection. (After Dall.)

Fig. 16. Erycina calvertensis n. sp 327

16. Interior of right valve. Plum Point.

Fig. 17. Erycina pruna n. sp. 327

17. Interior of right valve. Plum Point.



MOLLUSCA—PELECYPODA.

PLATE LXXXVIII.

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Figs. 1-3. Erycina marylandica n. sp. 328

1. Exterior of left valve. Three miles south of Chesapeake Beach.
2. Interior of right valve. Same locality.
3. Interior of right valve. Plum Point. U. S. National Museum. (After Dall.)

Figs. 4a, 4b. Erycina rickardia n. sp. 328

4a. Interior of right valve. Plum Point.
4b. Exterior of same valve.

Fig. 5. Erycina speciosa n. sp. 329

5. Interior of right valve. Plum Point.

Figs. 6-8. Bornia mactroides (Conrad) 330

6. Interior of left valve. Dover Bridge.
7. Exterior of right valve. Same locality.
8. Interior of right valve. Same locality.

Figs. 9a, 9b. Bornia triangula Dall 330

9a. Interior of right valve. Three miles west of Centerville.
9b. Exterior of same valve.

Fig. 10. Bornia marylandica n. sp. 330

10. Interior of right valve. Greensboro.

Fig. 11. Bornia depressa n. sp. 331

11. Interior of right valve. Plum Point.

Figs. 12, 13. Kellia rotundula n. sp. 331

12. Interior of right valve. Governor's Run.
13. Interior of left valve. Same locality.

Figs. 14-18. Thecodonta (Dicranodesma) calvertensis n. sp. 332

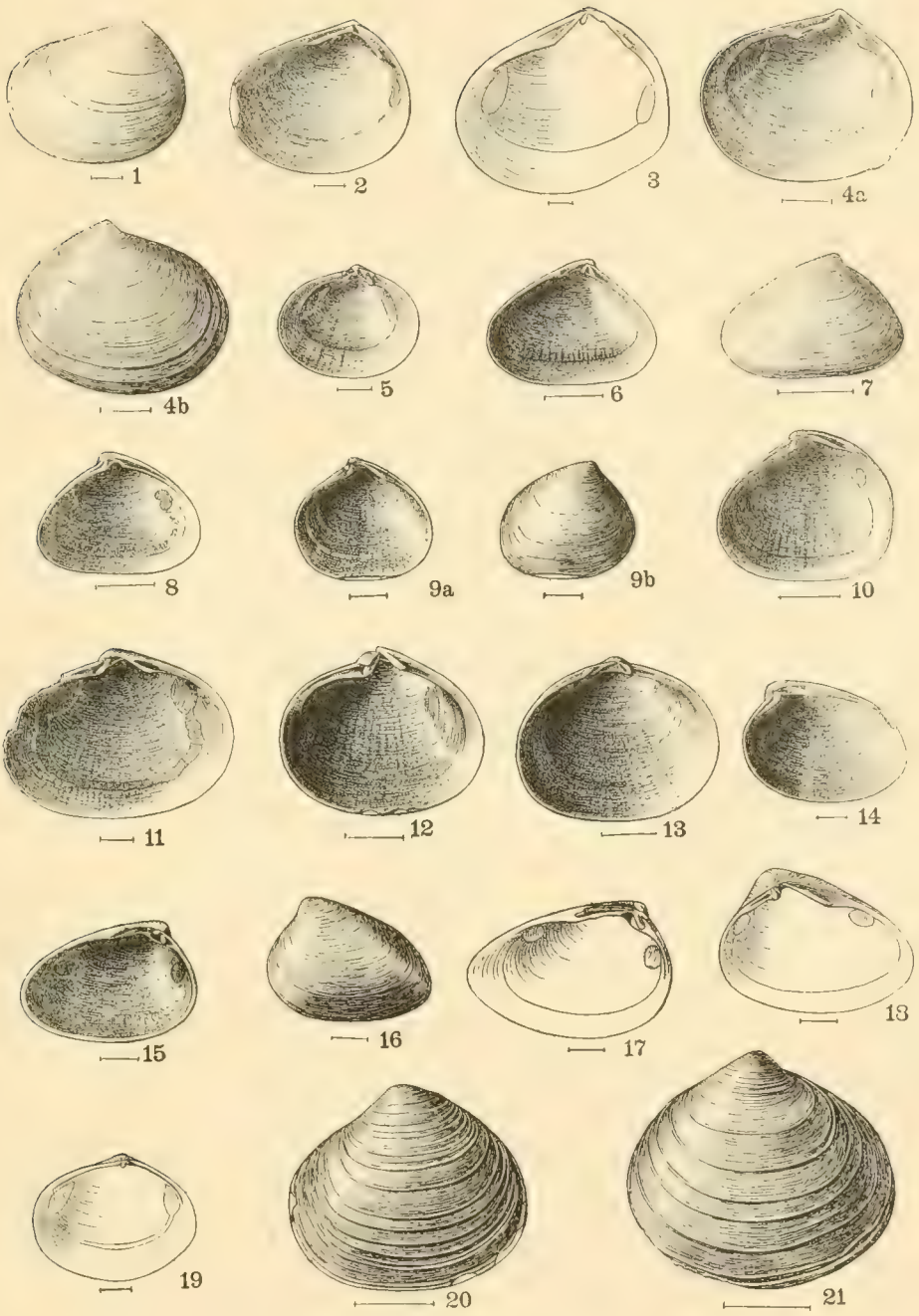
14. Interior of right valve. Plum Point.
15. Interior of left valve. Same locality.
16. Exterior of left valve. Same locality.
17. Interior of left valve. Plum Point. U. S. National Museum. (After Dall.)
18. Interior of right valve. Plum Point. U. S. National Museum. (After Dall.)

Fig. 19. Montacuta mariana Dall 332

19. Interior of right valve. St. Mary's River or Plum Point. U. S. National Museum. (After Dall.)

Figs. 20, 21. Aligena æquata (Conrad) 333

20. Exterior of left valve. Jones Wharf.
21. Exterior of right valve. Same locality.



MOLLUSCA—PELECYPODA.

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Figs. 1-3. ALIGENA ÆQUATA (Conrad) 333
1. Interior of left valve. Jones Wharf.
2a. Interior of left valve. Miocene of Virginia. U. S. National Museum. (After Dall.)
2b. Exterior of the same valve. (After Dall.)
3. Interior of right valve. Miocene of Virginia. U. S. National Museum. (After Dall.)

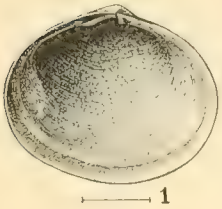
Fig. 4. ALIGENA ÆQUATA var. NUDA Dall 333
4. Exterior of right valve. Plum Point.

Figs. 5a, 5b. ALIGENA PUSTULOSA Dall 334
5a. Interior of left valve. Oligocene of Oak Grove, Florida. U. S. National Museum. (After Dall.)
5b. Exterior of same specimen. (After Dall.)

Figs. 6a, 6b. DIPLODONTA ACCLINIS Conrad 334
6a. Interior of right valve. Caloosahatchie beds. U. S. National Museum. (After Dall.)
6b. Exterior of same valve. (After Dall.)

Figs. 7, 8. DIPLODONTA SHILOHENSIS Dall 335
7. Exterior of left valve. Jones Wharf.
8. Interior of right valve. Same locality.

Figs. 9, 10. DIPLODONTA SUBVEXA (Conrad) 335
9. Interior of right valve. Flag Pond.
10. Exterior of left valve. Same locality.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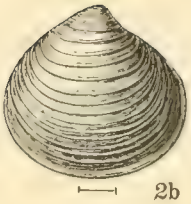
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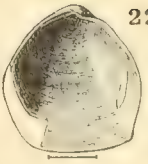
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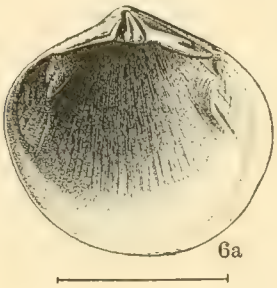
5a

5b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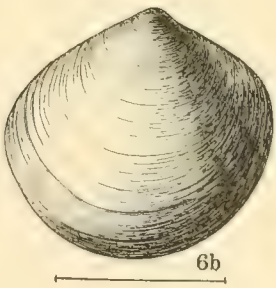
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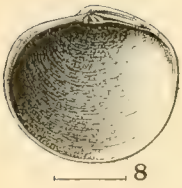
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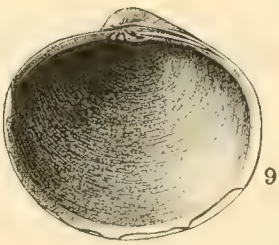
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MOLLUSCA—PELECYPODA.

PLATE XC.

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Figs. 1, 2. PHACOIDES (PSEUDOMILTHA) FOREMANI (Conrad) 336

1. Interior of left valve. Plum Point.
2. Exterior of right valve. Same locality.

Figs. 3, 4. PHACOIDES (PSEUDOMILTHA) ANODONTA (Say) 337

3. Interior of left valve. Jones Wharf.
4. Exterior of right valve. Same locality.

Figs. 5, 6. PHACOIDES (LUCINOMA) CONTRACTUS (Say) 339

5. Interior of left valve. Pawpaw Point.
6. Exterior of right valve. Same locality.

Figs. 7-9. PHACOIDES (HERE) TRISULCATUS (Conrad) 337

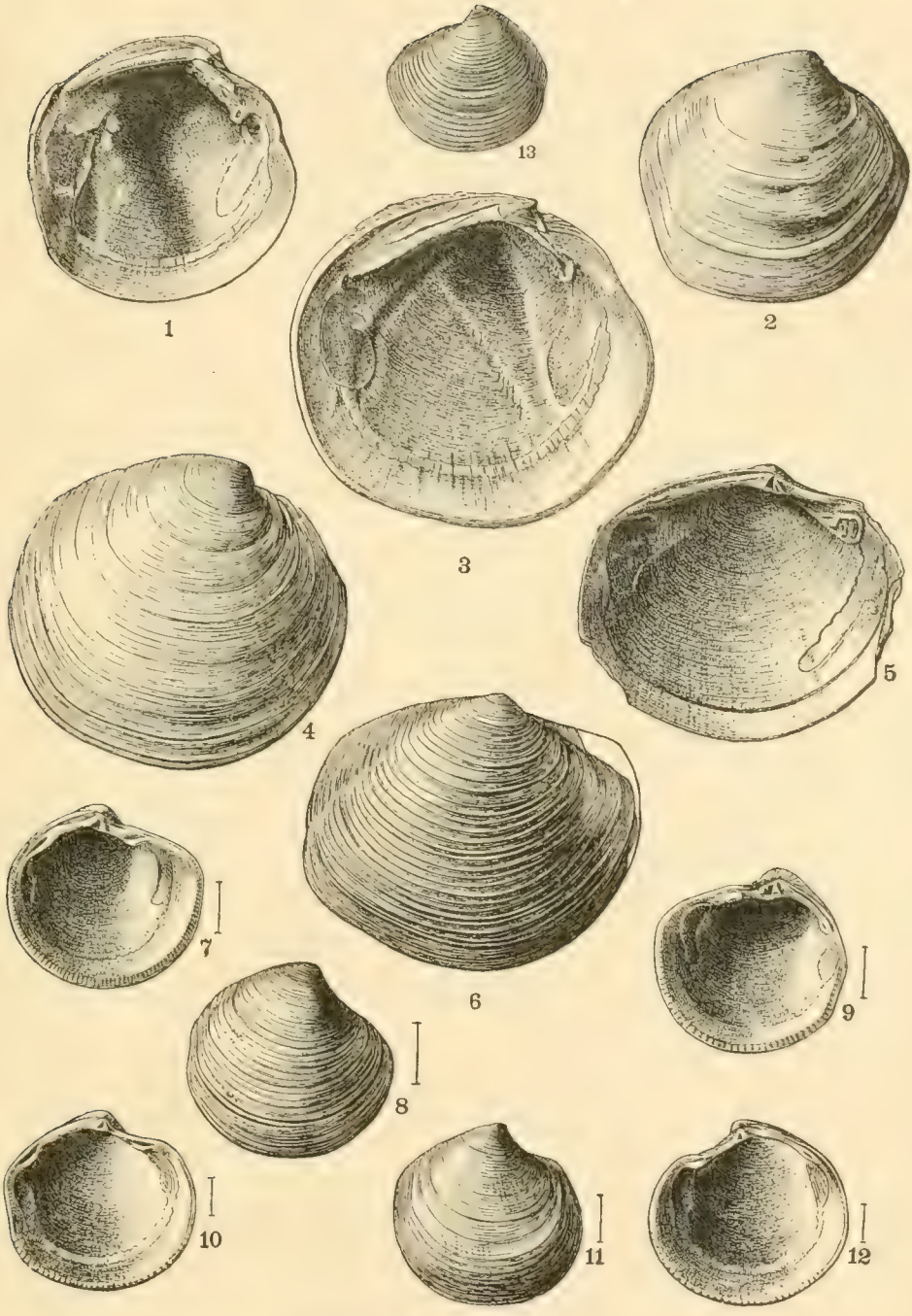
7. Interior of left valve. Plum Point.
8. Exterior of right valve. Same locality.
9. Interior of right valve. Same locality.

Figs. 10-12. PHACOIDES (PARVILUCINA) CRENULATUS (Conrad) 340

10. Interior of left valve. Cove Point.
11. Exterior of right valve. Same locality.
12. Interior of right valve. Same locality.

Fig. 13. PHACOIDES (PARVILUCINA) PRUNUS Dall 340

13. Exterior of left valve. Plum Point. U. S. National Museum. (After Dall.) × 3.



MOLLUSCA—PELECYPODA.

PLATE XCI.

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Figs. 1-3. CHAMA CONGREGATA Conrad 342

1. Interior of left valve. Church Hill.
2. Exterior of right valve. Same locality.
3. Exterior of right valve. Same locality.

Figs. 4-6. CARDITA PROTRACTA (Conrad) 343

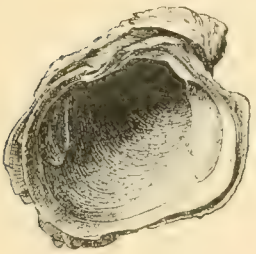
4. Exterior of right valve. Governor Run.
5. Exterior of right valve. Same locality.
6. Interior of left valve. Same locality.

Figs. 7-10. VENERICARDIA GRANULATA Say 344

7. Exterior of right valve, large variety. St. Mary's River.
8. Interior of left valve. Same locality.
9. Interior of left valve, smaller variety. Plum Point.
10. Exterior of right valve, smaller variety. Same locality.

Figs. 11, 12. VENERICARDIA CASTRANA n. sp. 345

11. Exterior of right valve. Church Hill.
12. Interior of left valve. Same locality.



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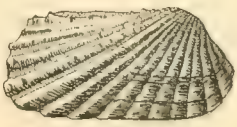

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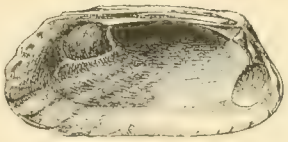

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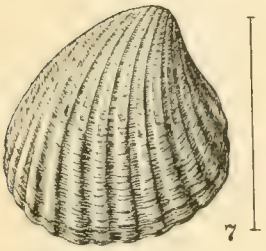

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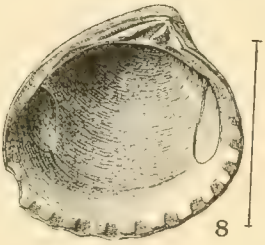

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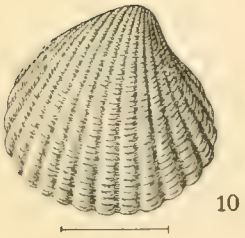

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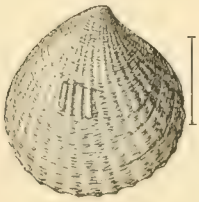

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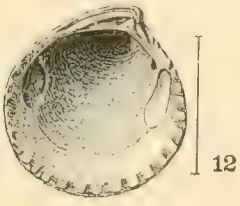

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MOLLUSCA—PELECYPODA.

PLATE XCII.

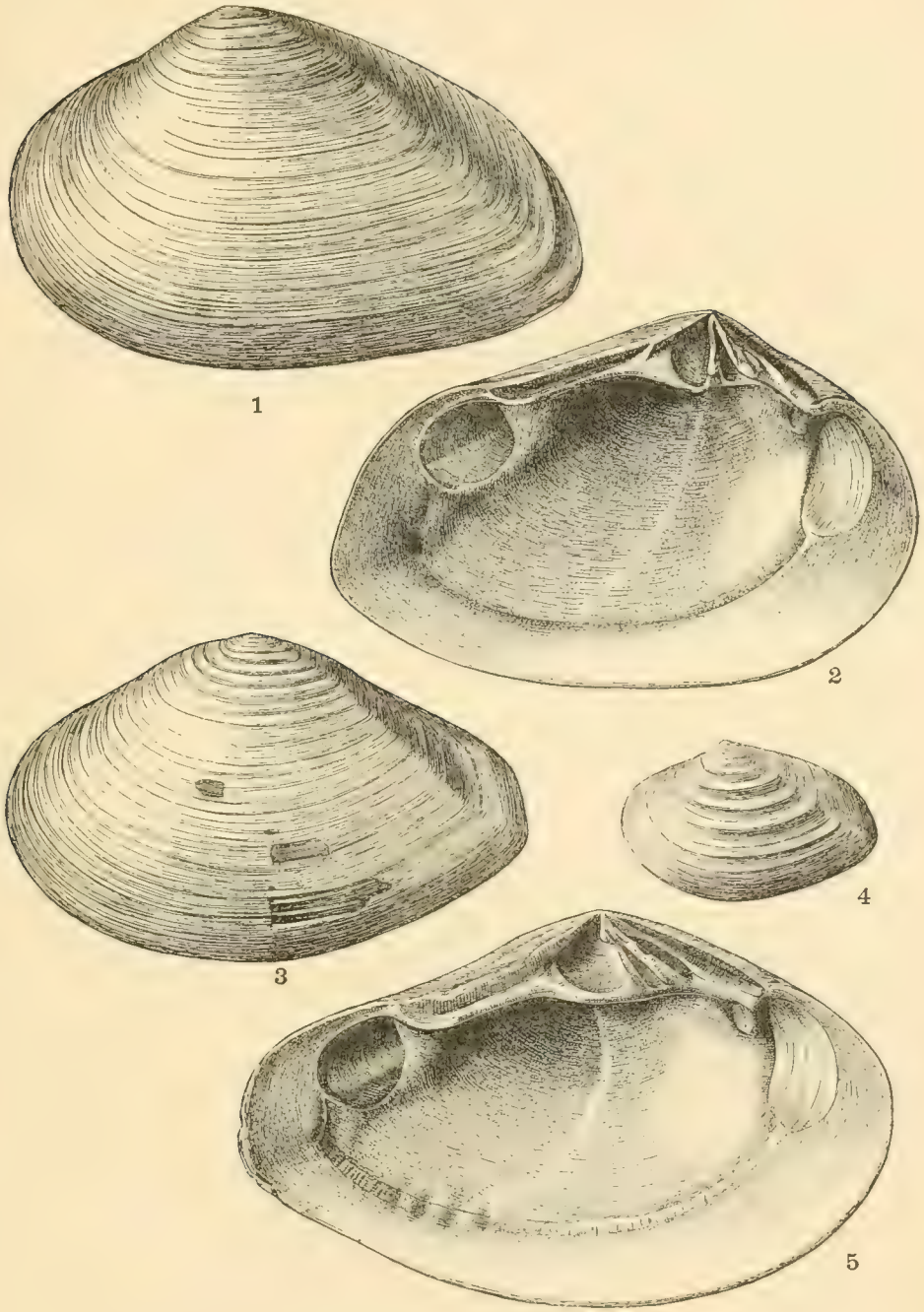
PAGE

Figs. 1, 2. CRASSATELLITES MELINUS (Conrad) 346

1. Exterior of left valve. Plum Point.
2. Interior of left valve. Same locality. × 8/9

Figs. 3-5. CRASSATELLITES TURGIDULUS (Conrad) 348

3. Exterior of left valve. Jones Wharf.
4. Exterior of left valve of young. Same locality.
5. Interior of left valve. Same locality.



MOLLUSCA—PELECYPODA.

PLATE XCIII.

PAGE

Figs. 1-3. CRASSATELLITES MARYLANDICUS (Conrad) 347

1. Exterior of left valve. Dover Bridge.
2. Exterior of left valve of young individual.
3. Interior of left valve. Same locality.

Figs. 4-6. ASTARTE CUNEIFORMIS Conrad 353

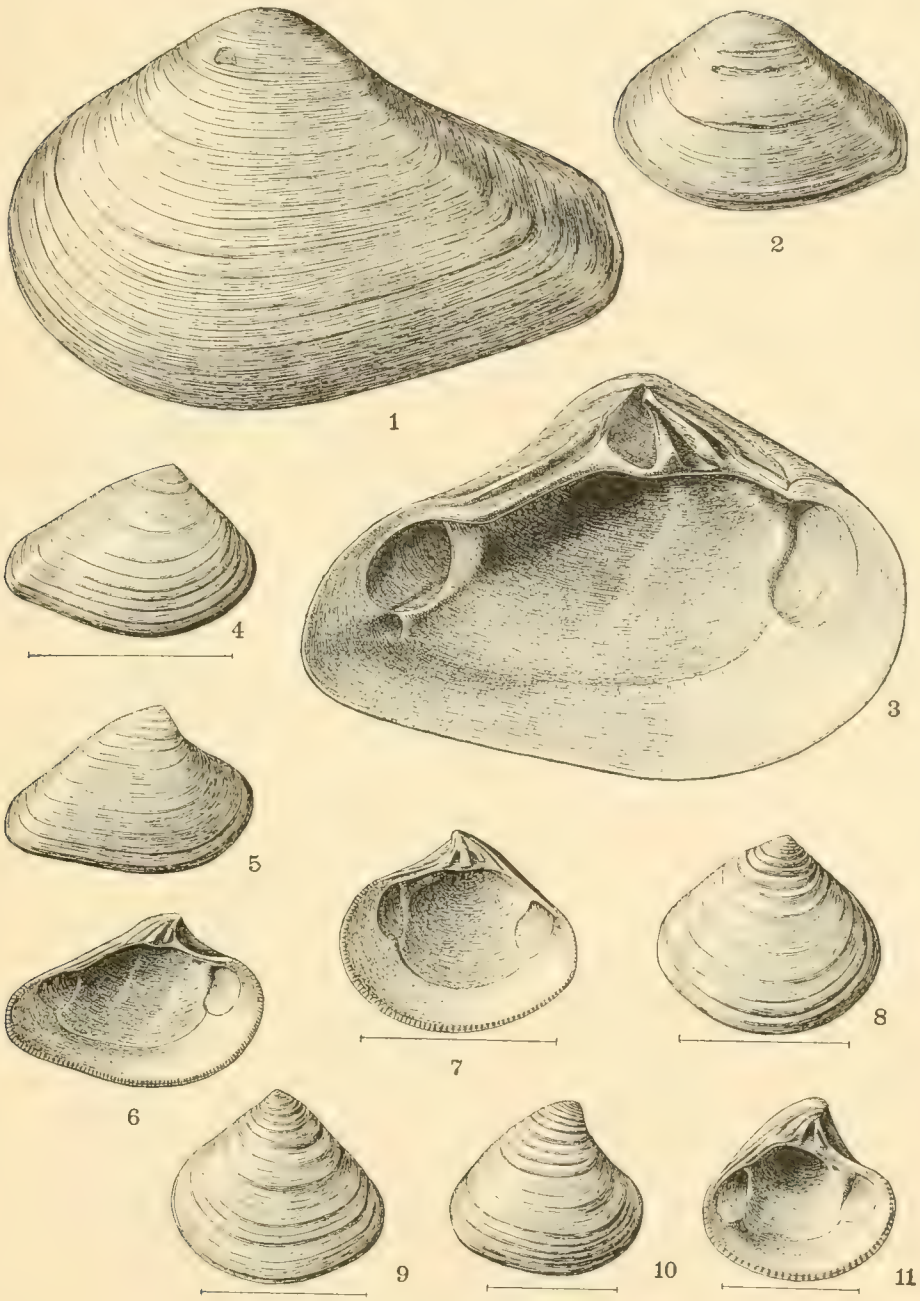
4. Exterior of right valve. Plum Point.
5. Exterior of right valve. Same locality.
6. Interior of left valve. Same locality.

Figs. 7-9. ASTARTE CASTRANA n. sp. 353

7. Interior of right valve. Reed's.
8. Exterior of right valve. Same locality.
9. Exterior of left valve. Same locality.

Figs. 10, 11. ASTARTE VICINA Say 350

10. Exterior of right valve. Plum Point.
11. Interior of left valve. Same locality.



MOLLUSCA—PELECYPODA.

PLATE XCIV.

PAGE

Figs. 1, 2. ASTARTE THOMASII Conrad 351
1. Exterior of right valve. Plum Point.
2. Interior of left valve. Same locality.

Figs. 3, 4. ASTARTE CALVERTENSIS n. sp. 352
3. Exterior of left valve. Plum Point.
4. Interior of right valve. Same locality.

Figs. 5, 6. ASTARTE OBRUTA Conrad 354
5. Interior of left valve. Dover Bridge.
6. Exterior of left valve. Same locality.

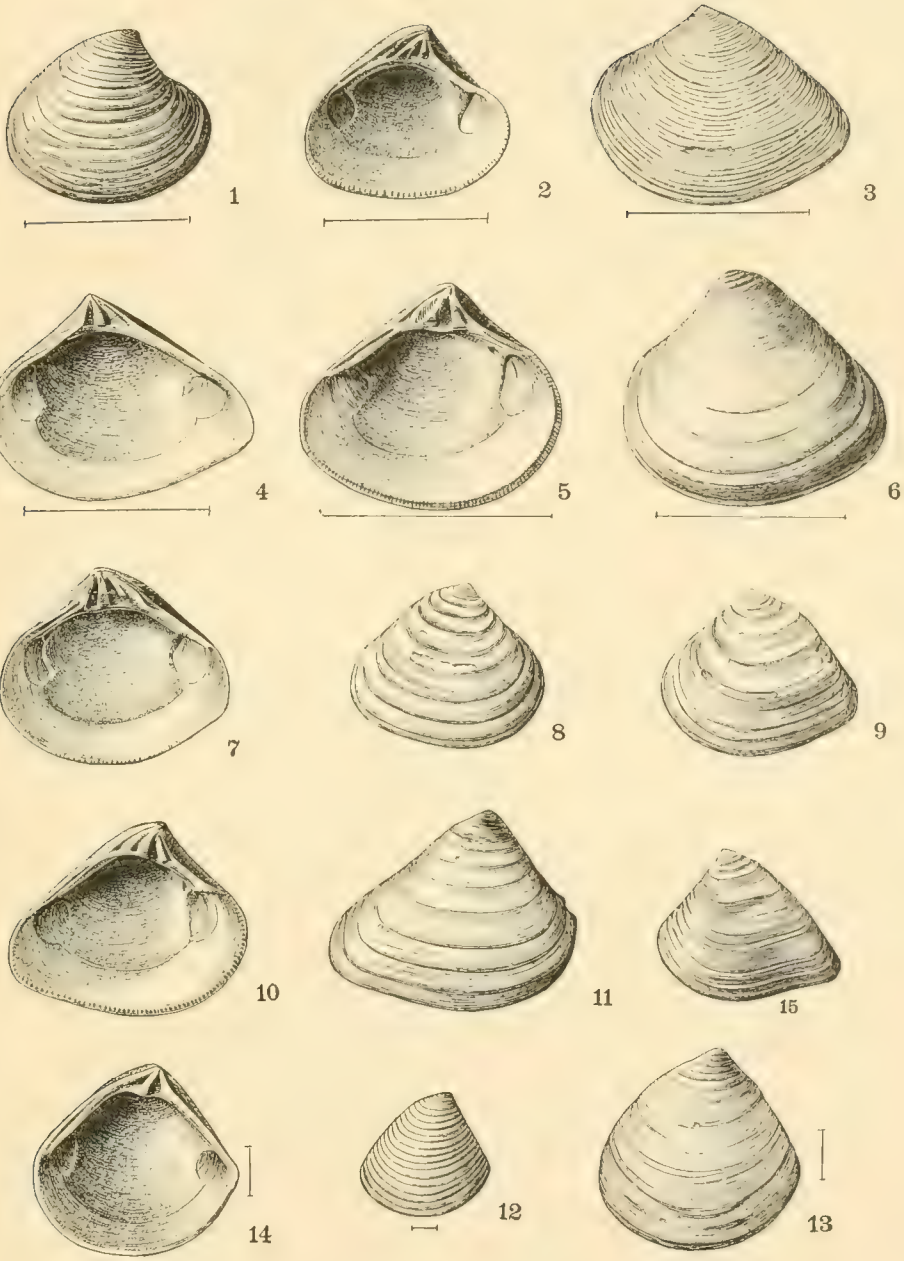
Figs. 7-9. ASTARTE THISPHILA n. sp. 355
7. Interior of right valve. Jones Wharf.
8. Exterior of right valve. Same locality.
9. Exterior of left valve—the most characteristic drawing. Same locality.

Figs. 10, 11. ASTARTE PERPLANA Conrad 356
10. Interior of left valve. St. Mary's River.
11. Exterior of right valve. Same locality.

Fig. 12. CRASSATELLITES (CRASSINELLA) DUPLINIANUS Dall 349
12. Exterior of right valve of type specimen. Duplin county, North Carolina. U. S. National Museum.

Figs. 13, 14. CRASSATELLITES (CRASSINELLA) GALVESTONENSIS (Harris).. 350
13. Exterior of right valve. St. Mary's River.
14. Interior of left valve. Same locality.

Fig. 15. ASTARTE PARMA Dall 357
15. Exterior of left valve. (After Dall.) × 4/5



MOLLUSCA—PELECYPODA.

PLATE XCV.

PAGE

Figs. 1, 2. Pandora (Clidiophora) crassidens Conrad 357

1. Exterior of left valve. St. Mary's River.
2. Interior of right valve. Same locality.

Fig. 3. Periploma peralta Conrad 359

3. Interior of broken valve. Cove Point.

Fig. 4. Thracia conradi Couthouy 359

4. Exterior of left valve. Plum Point.

Figs. 5, 6. Margaritaria abrupta (Conrad) 361

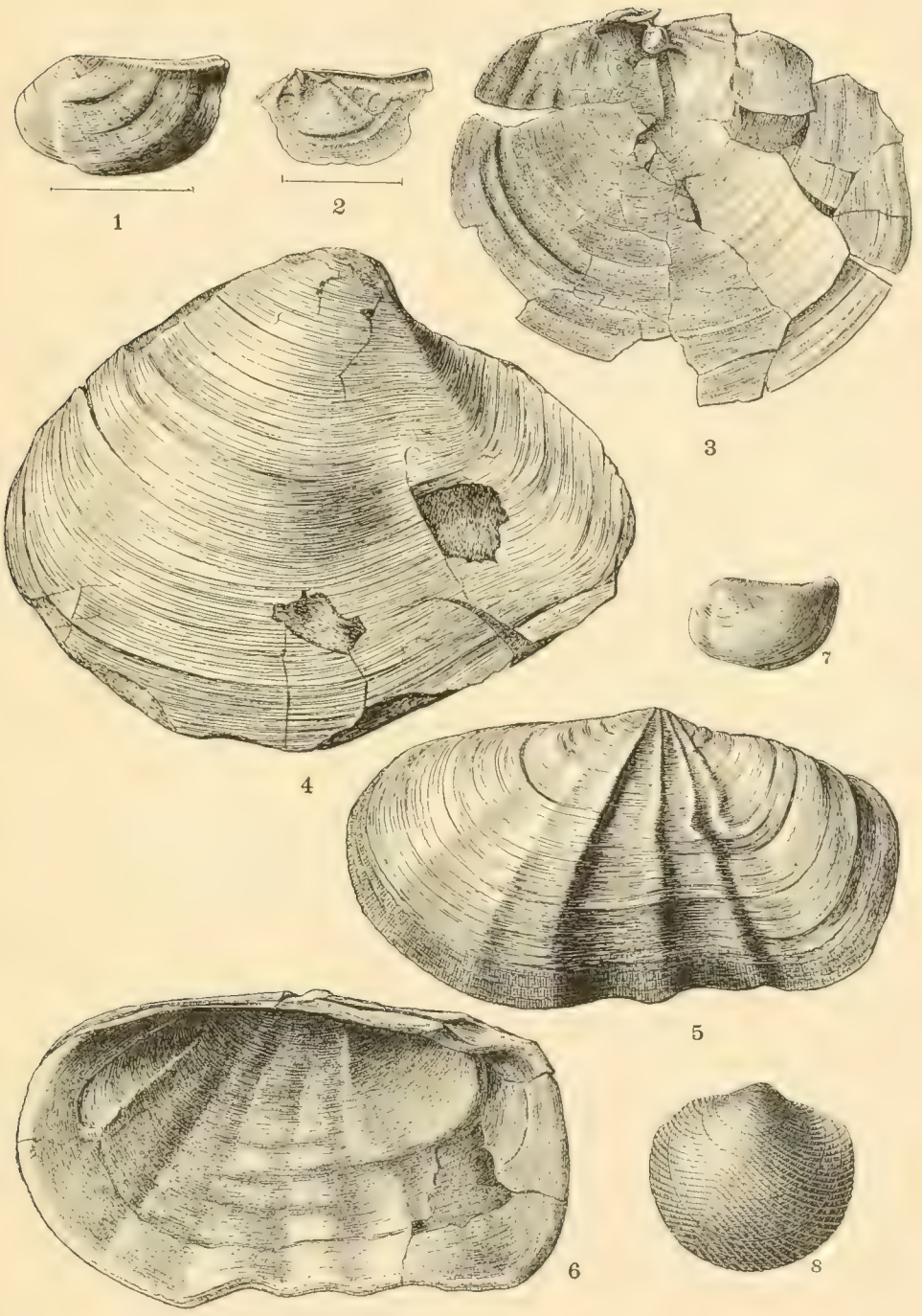
5. Exterior of right valve. Yorktown, Virginia.
6. Interior of left valve. Same locality.

Fig. 7. Pandora (Kennerleyia) lata Dall 358

7. Exterior of left valve. St. Mary's River (?). U. S. National Museum. (After Dall.)

Fig. 8. Divaricella quadrisulcata (d'Orbigny) 341

8. Exterior. Petersburg, Va. U. S. National Museum. (After Dall.) × 1½



MOLLUSCA—PELECYPODA.

PLATE XCVI.

PAGE

Figs. 1a, 1b. MYTILUS CONRADINUS d'Orbigny 362

1a. Exterior of right valve. Plum Point. × ½.

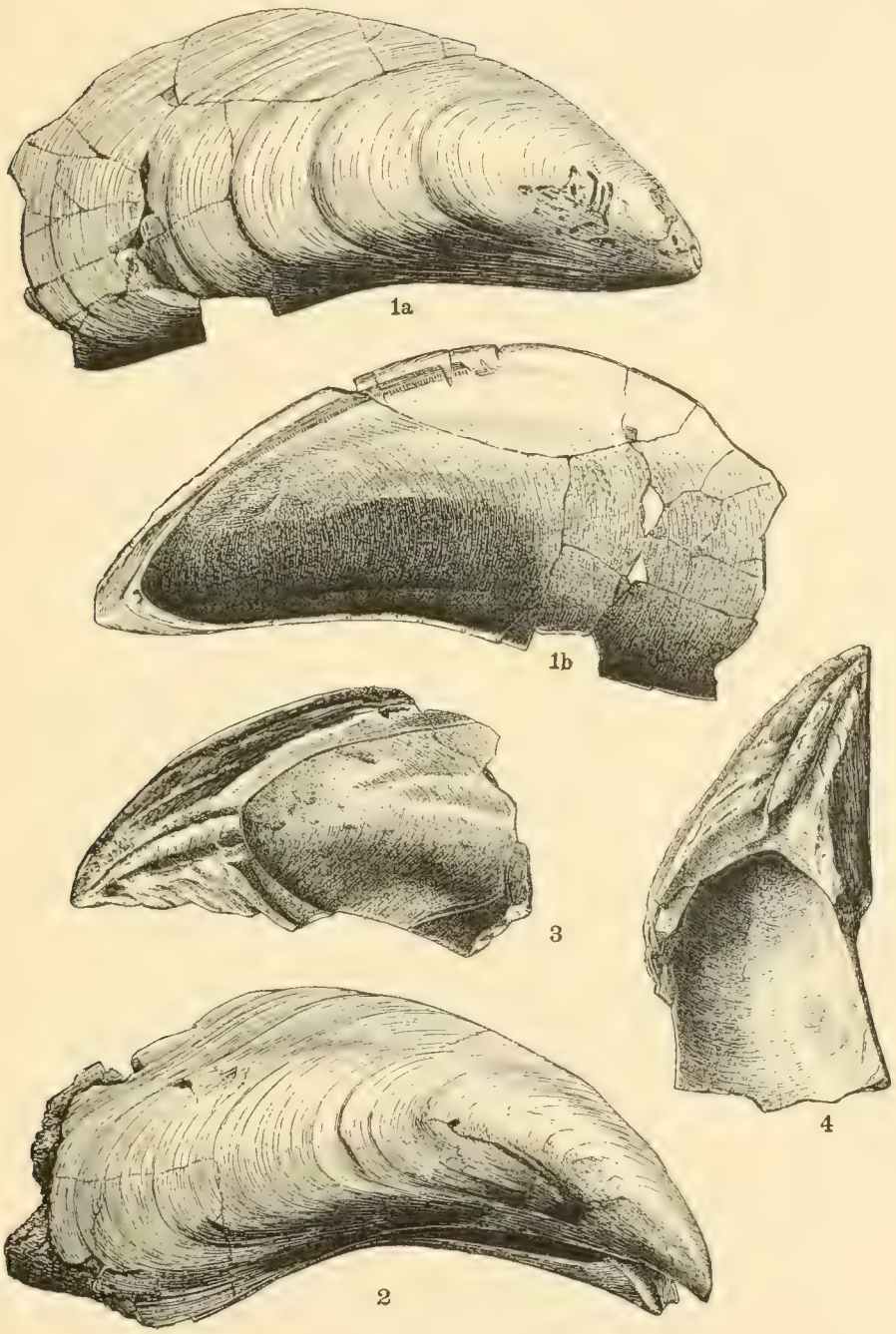
1b. Interior of same valve.

Figs. 2-4. MYTILUS (MYTILOCONCHA) INCURVUS Conrad..... 363

2. Exterior of right valve with part of beak of left valve showing beneath. Greensboro. × ⅔

3. Interior of right beak. Same locality.

4. Interior of left beak. Same locality.



MOLLUSCA—PELECYPODA.

PLATE XCVII.

PAGE

Fig. 1. Lithophaga subalveata Conrad 364

1. Exterior of right valve. Shiloh, New Jersey. Acad. Nat. Sci., Phila. (After Conrad. Amer. Jour. Conch., vol. II, pl. IV, fig. IV.)

Fig. 2, 3. Lithophaga ionensis n. sp. 364

2. Exterior of right valve. Jones Wharf.
3. Exterior of right valve. Same locality.

Fig. 4. Crenella virida n. sp. 365

4. Specimen from Greensboro.

Fig. 5. Crenella gubernatoria n. sp. 365

5. Specimen from Governor Run.

Figs. 6, 7. Modiolus ducatellii Conrad 366

6. Exterior of right valve. Dover Bridge.
7. Interior of beak portion of left valve. Cove Point.

Figs. 8a, 8b. Modiolus virginicus (Conrad) 366

8a. Exterior of left valve. St. Mary's River.
8b. Interior of same specimen.

Figs. 9, 10. Modiolus dalli n. sp. 367

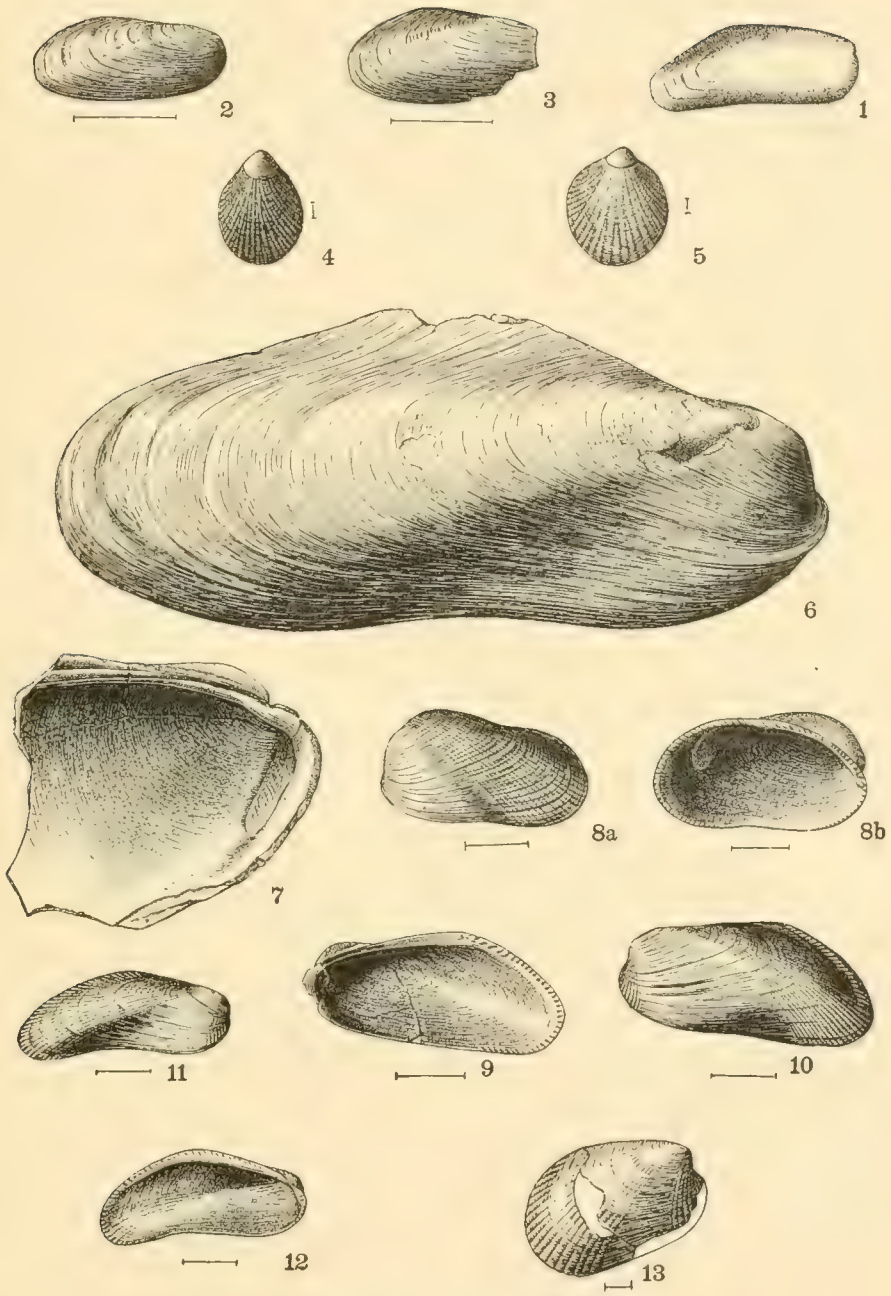
9. Interior of right valve. Pawpaw Point.
10. Exterior of left valve of same individual.

Figs. 11, 12. Modiolus ionensis n. sp. 368

11. Exterior of right valve. Jones Wharf.
12. Interior of left valve of same individual.

Fig. 13. Modiolaria curta n. sp. 368

13. Exterior of right valve. Plum Point. Cornell University.



MOLLUSCA—PELECYPODA.

PLATE XCVIII.

PAGE

Fig. 1. ANOMIA SIMPLEX d'Orbigny 369

1. Exterior of upper valve. St. Mary's River.

Figs. 2-5. ANOMIA ACULEATA Gmelin 369

2. Exterior of broken upper valve. Plum Point.
3. Exterior of lower valve. Jones Wharf.
4. Interior of lower valve. Same locality.
5. Exterior of lower valve. Same locality.

Fig. 6. LIMA PAPYRIA Conrad 370

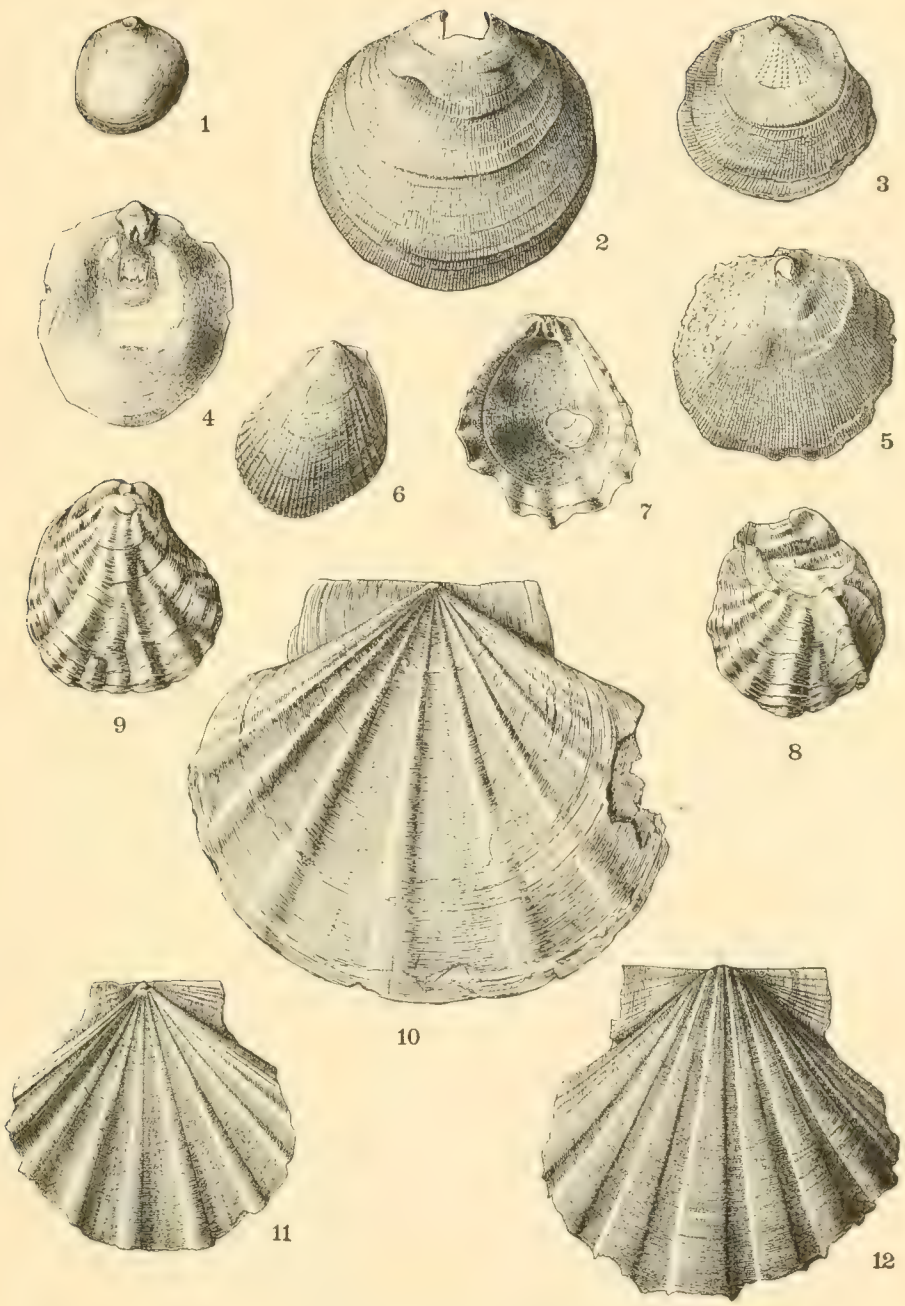
6. Exterior of right valve. Plum Point.

Figs. 7-9. PLICATULA DENSATA Conrad 371

7. Interior of lower valve. Evans farm near Church Hill.
8. Exterior of upper valve. Same locality.
9. Exterior of upper valve. Same locality.

Figs. 10-12. PECTEN (PECTEN) HUMPHREYSII Conrad 372

10. Exterior of lower valve. Plum Point. × ½.
11. Exterior of another lower valve. Same locality.
12. Exterior of an upper valve. Same locality.



MOLLUSCA—PELECYPODA.

PLATE XCIX.

PAGE

Fig. 1. PECTEN (AMUSIUM) MORTONI Ravenel 372
1. Exterior of right valve. Fort Thompson, Florida. U. S. National Museum. × ½

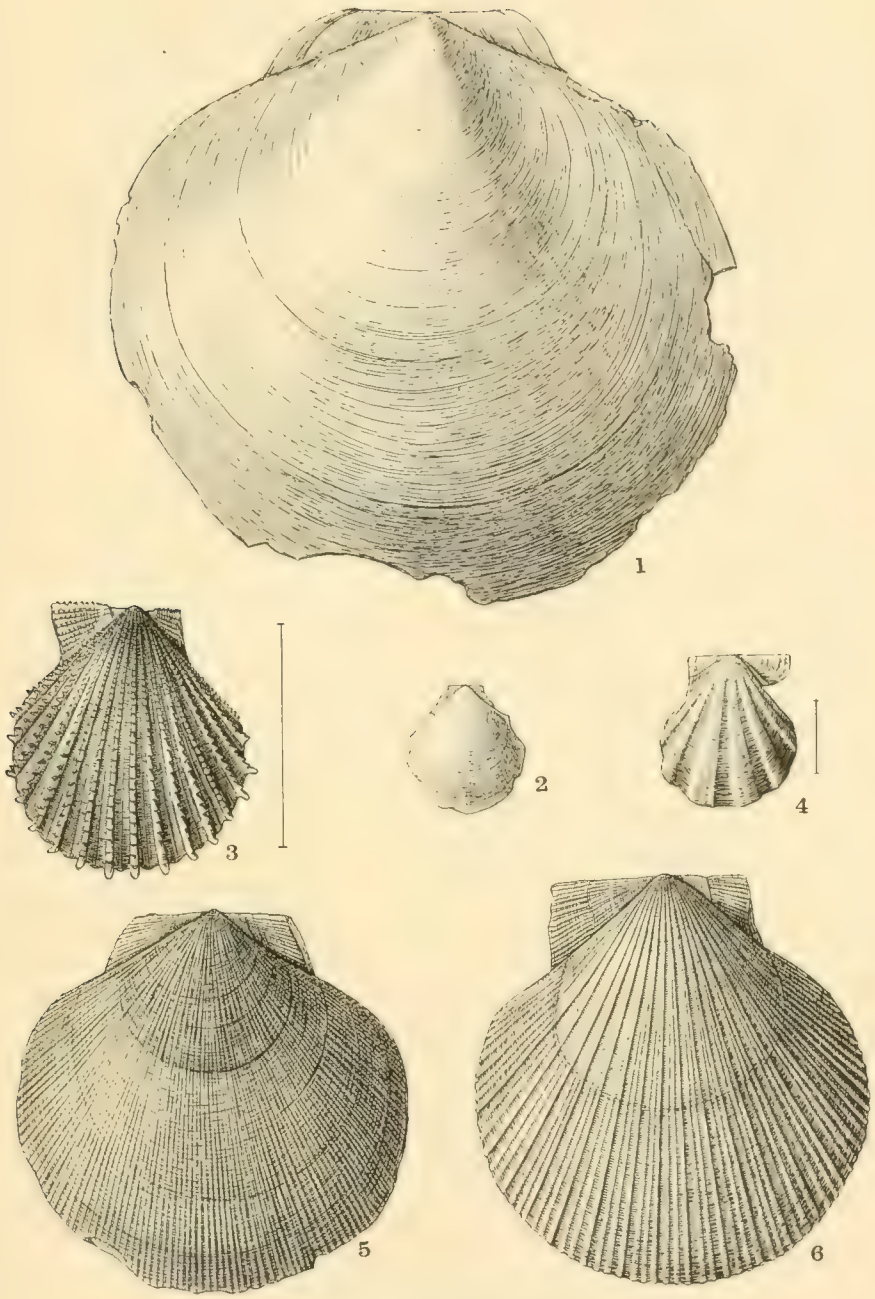
Fig. 2. PECTEN (PSEUDAMUSIUM) CERINUS Conrad 373
2. Exterior of right valve. Plum Point.

Fig. 3. PECTEN (CHLAMYS) COCCYMELUS Dall 374
3. Exterior of left valve. Plum Point. (After Dall.)

Fig. 4. PECTEN (CHLAMYS) ROGERSI Conrad 375
4. Exterior of right valve. Near Skipton. U. S. National Museum.

Fig. 5. PECTEN (CHLAMYS) CLINTONIUS Say 375
5. Exterior of right valve. James River, Virginia. × ½

Fig. 6. PECTEN (CHLAMYS) MARYLANDICUS Wagner..... 376
6. Exterior of left valve. Jones Wharf.



MOLLUSCA—PELECYPODA.

PLATE C.

PAGE

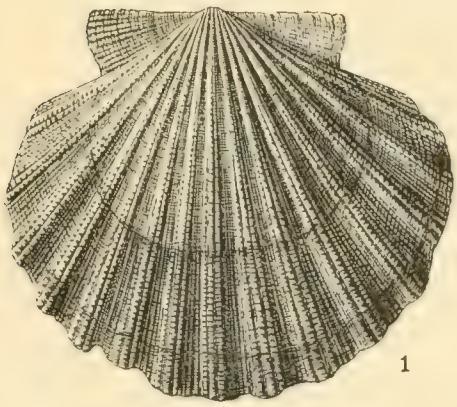
Fig. 1. Pecten (Chlamys) madisonius Say 377
1. Exterior of left valve. Flag Pond. × ½

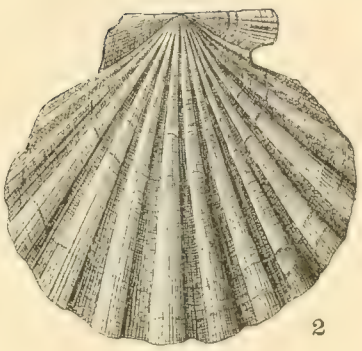
Fig. 2. Pecten (Chlamys) jeffersonius Say 378
2. Exterior of right valve. St. Mary's River. × ½

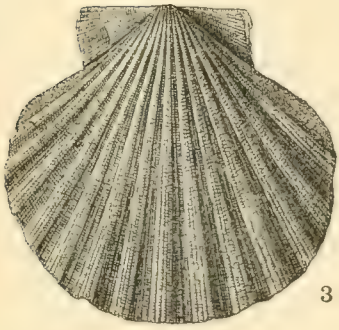
Fig. 3. Pecten jeffersonius var. edgecombensis Dall 379
3. Exterior of left valve. St. Mary's River. U. S. National Museum. × ½

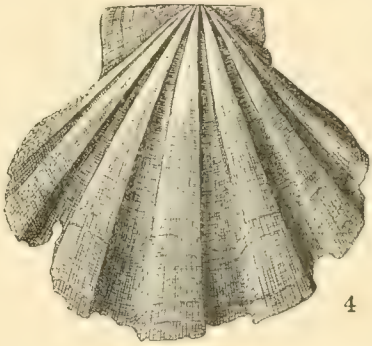
Fig. 4. Pecten jeffersonius var. septenarius Say 379
4. Exterior of right valve. Petersburg, Virginia. U. S. National Museum. × ½

Figs. 5a, 5b. Ostrea sellæformis var. thomasii (Conrad) 380
5a. Exterior of type specimen. Charles county near the Patuxent river. Acad. Nat. Sci., Phila.
5b. Interior of the same specimen.









MOLLUSCA—PELECYPODA.

PLATE CI

PAGE

Figs. 1a, 1b. OSTREA TRIGONALIS Conrad 381

1a. Exterior of lower valve. Greensboro. × ⅔

1b. Interior of the same valve. × ⅔

Figs. 2-4. OSTREA CAROLINENSIS Conrad 381

2. Interior of lower valve. Governor Run. × ⅔

3. Interior of upper valve. Same locality. × ⅔

4. Exterior of lower valve. Same locality. × ⅔

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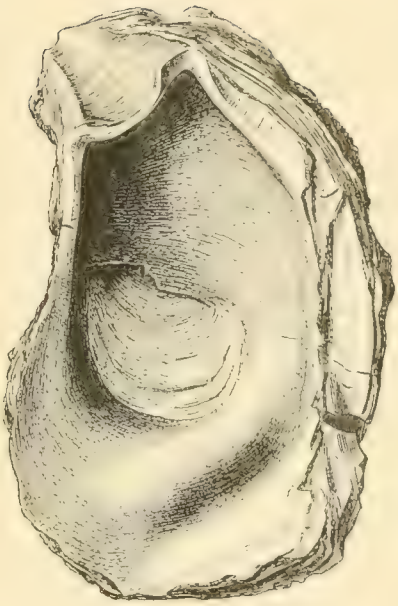

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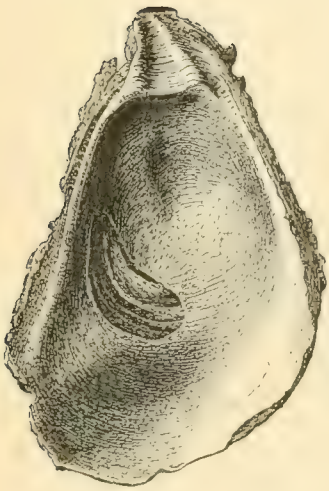

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MOLLUSCA—PELECYPODA.

PLATE CII.

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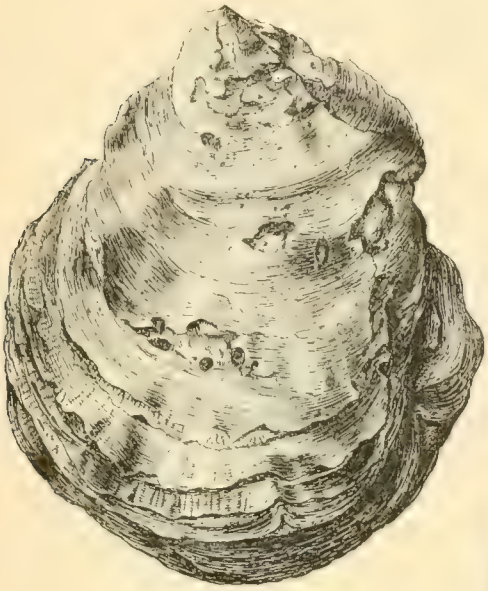
Figs. 1, 2. OSTREA PERCRASSA Conrad 382

1. Exterior of upper valve. Magruder Ferry. × ½
2. Interior of lower valve. Same locality. × ½

Fig. 3. MELINA MAXILLATA (Deshayes) 383

3. Exterior of right valve. Plum Point. × ⅔



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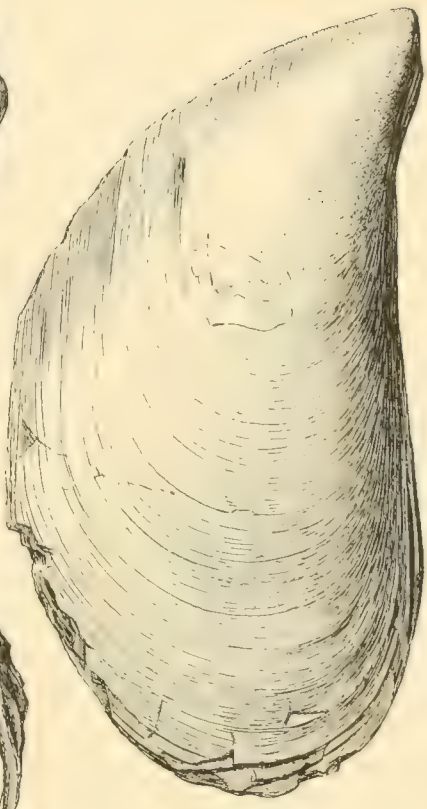

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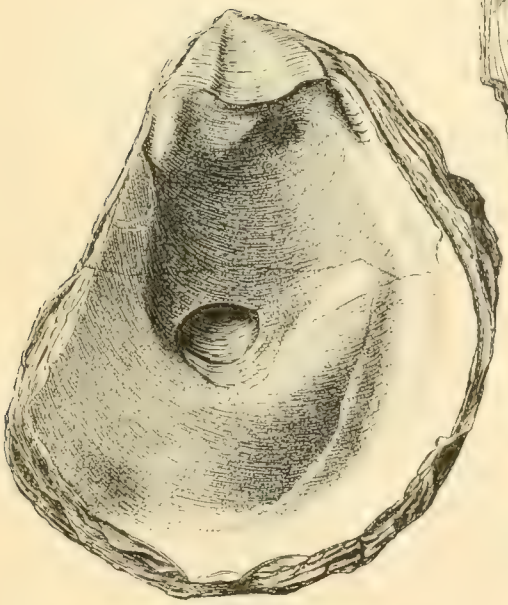

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MOLLUSCA—PELECYPODA.

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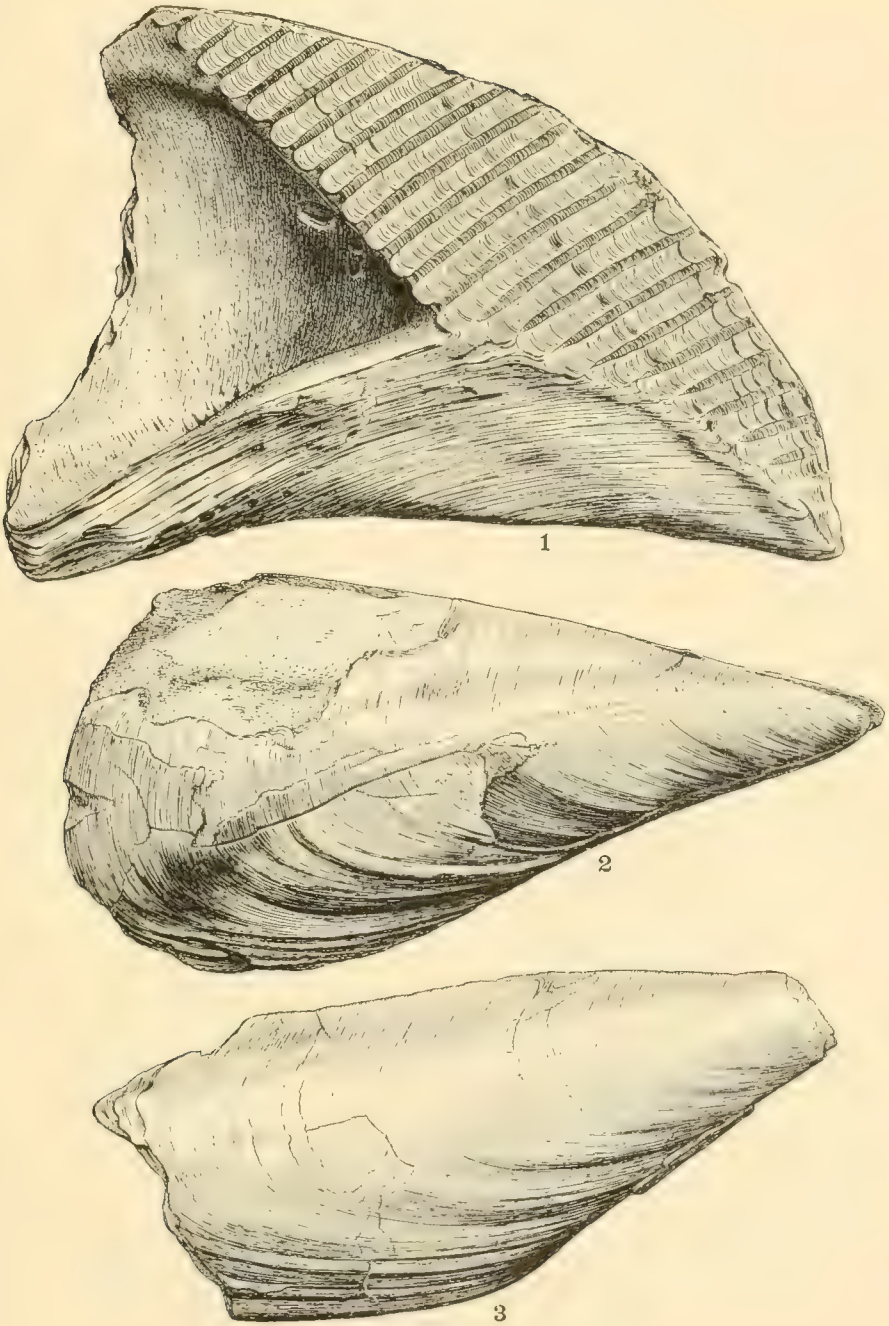
PAGE

Fig. 1. MELINA MAXILLATA (Deshayes) 383

1. Interior of broken valve showing hinge and ligament grooves. Jones Wharf. × ⅔

Figs. 2, 3. ATRINA HARRISII Dall 384

2. Exterior of right valve. Pawpaw Point. × ⅔
3. Exterior of decorticated right valve. Jones Wharf. U. S. National Museum. (After Dall.) × ⅔



MOLLUSCA—PELECYPODA.

PLATE CIV.

PAGE

Fig. 1. Atrina piscatoria n. sp 384

1. Exterior of right valve. Fishing Creek. × ⅔

Figs. 2-3b. Arca (Scapharca) subrostrata Conrad 385

2. Interior of right valve. Plum Point.

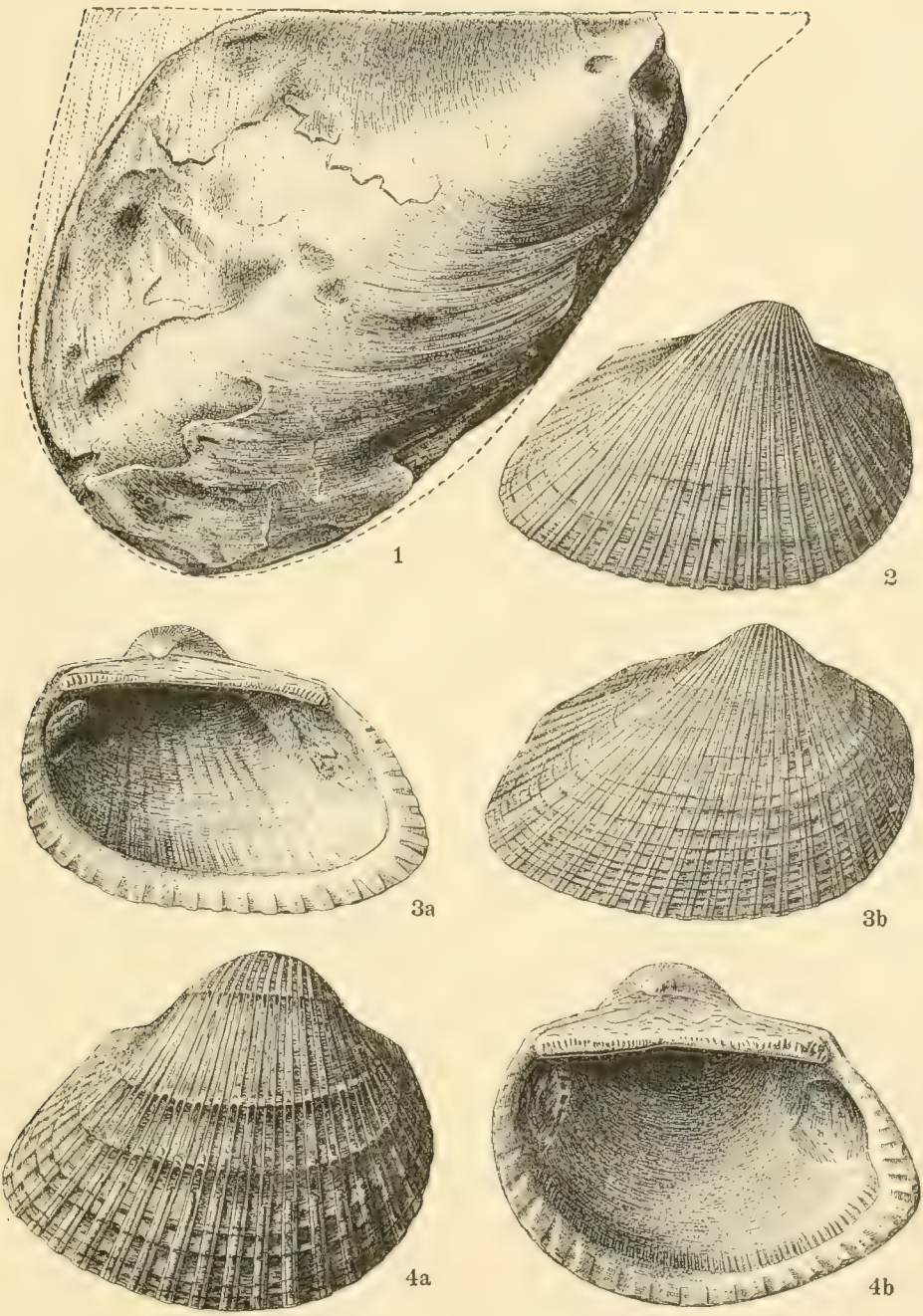
3a. Exterior of right valve. Same locality.

3b. Exterior of right valve. Same locality.

Figs. 4a, 4b. Arca (Scapharca) elnia n. sp. 386

4a. Exterior of right valve. Jones Wharf.

4b. Interior of right valve. Same locality.



MOLLUSCA—PELECYPODA.

PLATE CV.

PAGE

Fig. 1. ARCA (SCAPHARCA) CLISIA Dall 386

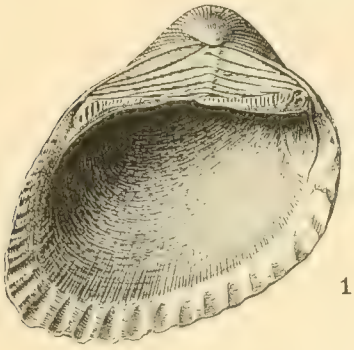
1. Interior of left valve. Nomini Cliffs, Virginia. U. S. National Museum. 56 mm. (After Dall.)

Figs. 2-6. ARCA (SCAPHARCA) STAMINEA Say 387

2. Interior of left valve. Flag Pond.
3. Interior of left valve of short variety. Same locality.
4. Exterior of right valve. Same locality.
5. Exterior of right valve. Dover Bridge.
6. Interior of left valve. Peach Blossom Creek.

Figs. 7a, 7b. ARCA (SCAPHARCA) ARATA Say..... 388

7a. Interior of right valve. St. Mary's River.
7b. Exterior of left valve. Same locality.



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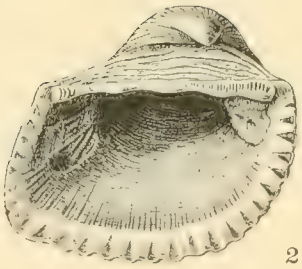

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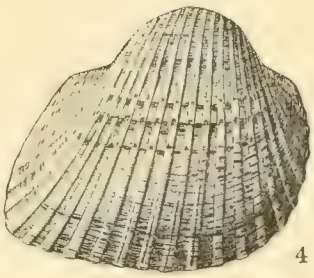

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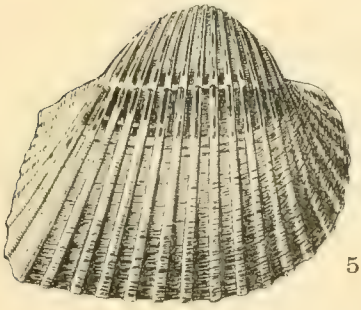

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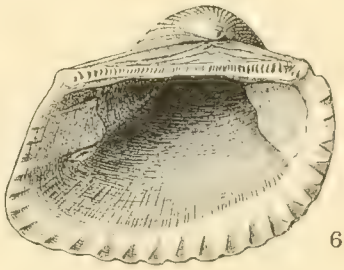

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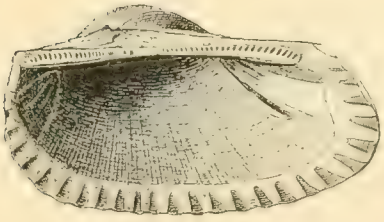

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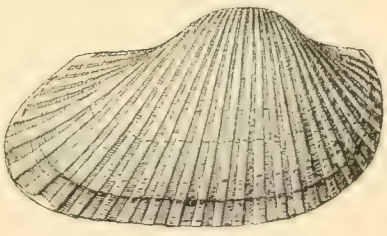


7b

MOLLUSCA—PELECYPODA.

PLATE CVI.

PAGE

Figs. 1, 2. ARCA (SCAPHARCA) IDONEA Conrad 389

1. Interior of left valve. St. Mary's River.
2. Exterior of right valve. Same locality.

Figs. 3, 4. ARCA (NOËTIA) INCILE Say 390

3. Exterior of right valve. Darlington, South Carolina. Johns Hopkins University.
4. Interior of left valve. Same locality.

Figs. 5, 6. ARCA (BARBATIA) CENTENARIA Say..... 391

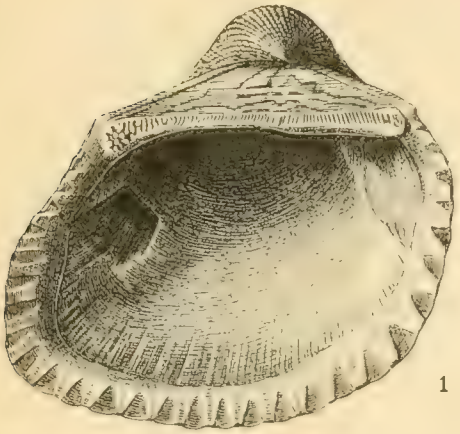
5. Interior of right valve. Jones Wharf.
6. Exterior of left valve. Same locality.

Fig. 7. ARCA (BARBATIA) MARYLANDICA Conrad 392

7. Exterior of right valve. Plum Point. U. S. National Museum.

Fig. 8. ARCA (BARBATIA) VIRGINLE Wagner 392

8. Exterior of left valve of type specimen. Miocene of Virginia (Nansemond River?) 84 mm. Wagner Free Inst. Sci. (After Dall.)



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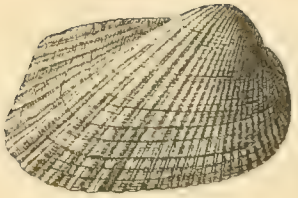

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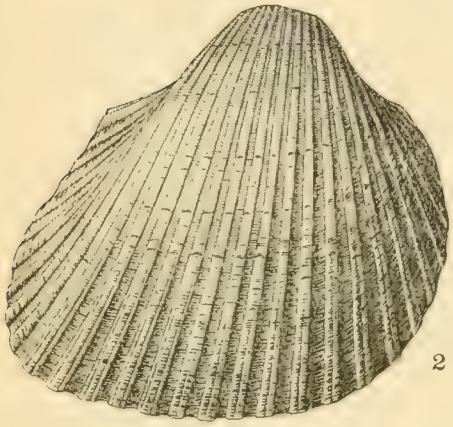

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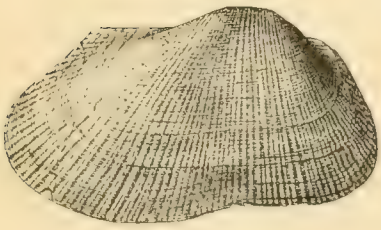

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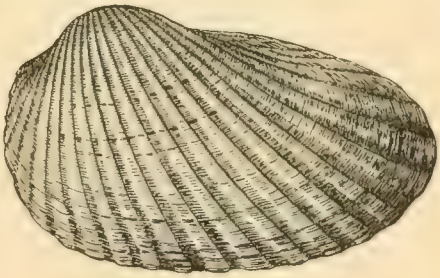

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MOLLUSCA—PELECYPODA.

PLATE CVII.

PAGE

Figs. 1, 2. GLYCYMERIS PARILIS (Conrad) 393

1. Interior. 3 miles south of Fishing Creek. × 5/6
2. Exterior of opposite valve. Same locality. × 5/6

Figs. 3, 4. GLYCYMERIS SUBOVATA (Say) 394

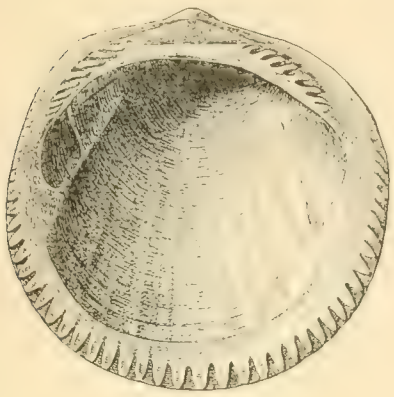
3. Interior. Greensboro.
4. Exterior. Same locality.

Figs. 5-8. LEDA LICIATA (Conrad) 395

5. Exterior of left valve with coarse sculpture. Plum Point.
6. Interior of left valve. Same locality.
7. Exterior of left valve with very fine close-set concentric sculpture. Same locality.
8. Exterior of left valve with very coarse sculpture. Same locality.

Figs. 9, 10. LEDA LICIATA var. AMYDRA Dall 396

9. Interior of left valve. Plum Point.
10. Exterior of left valve. Same locality.



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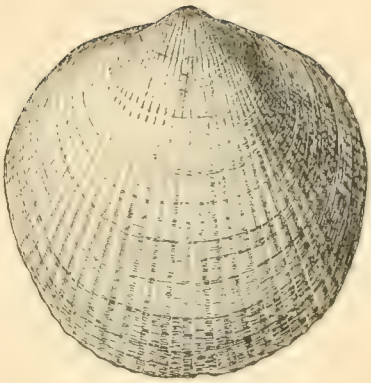

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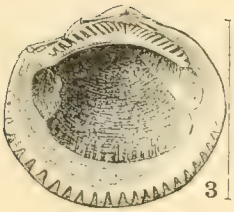

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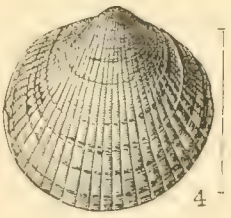

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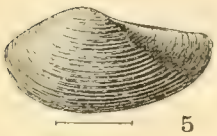

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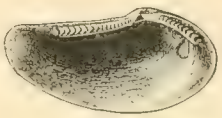

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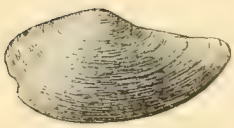

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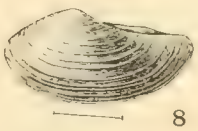

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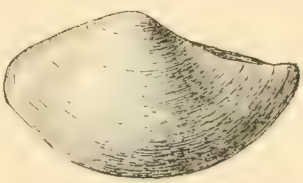

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MOLLUSCA—PELECYPODA.

PLATE CVIII.

PAGE

Figs. 1, 2. LEDA CONCENTRICA (Say) 397

1. Interior of right valve. Pocomoke City Well, 53 to 75 feet from surface.
2. Exterior of right valve. Same locality.

Figs. 3, 4. YOLDIA LÆVIS (Say) 397

3. Interior of right valve. Jones Wharf.
4. Exterior of left valve. Same locality.

Figs. 5, 6. NUCULA PROXIMA Say 398

5. Exterior of right valve. Dover Bridge.
6. Interior of left valve. Same locality.

Figs. 7, 8. NUCULA SINARIA Dall 399

7. Interior of left valve. Cove Point.
8. Exterior of right valve. Same locality.

Figs. 9-11. NUCULA TAPHRIA Dall 400

9. Interior of right valve. St. Mary's River.
10. Exterior of right valve from Natural Well, North Carolina. U. S. National Museum. (After Dall.)
11. Exterior of right valve. St. Mary's River.

Figs. 12-14. NUCULA PRUNICOLA Dall 401

12. Exterior of right valve. Plum Point.
13. Exterior of right valve. Same locality. U. S. National Museum. (After Dall.)
14. Interior of right valve. Same locality.

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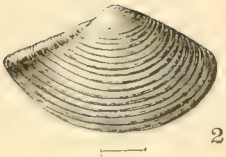
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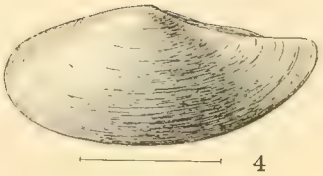
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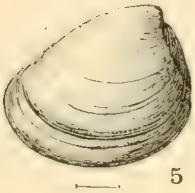
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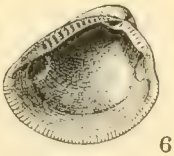
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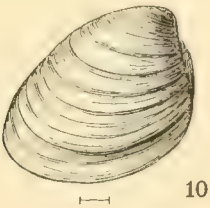
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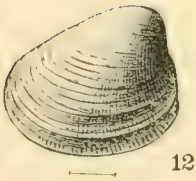
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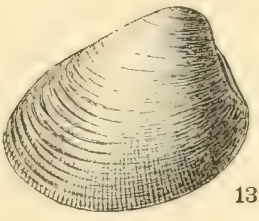
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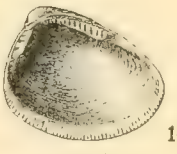
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MOLLUSCA—PELECYPODA.

PLATE CIX.

PAGE

Figs. 1-3. Discinisca lugubris (Conrad) 402

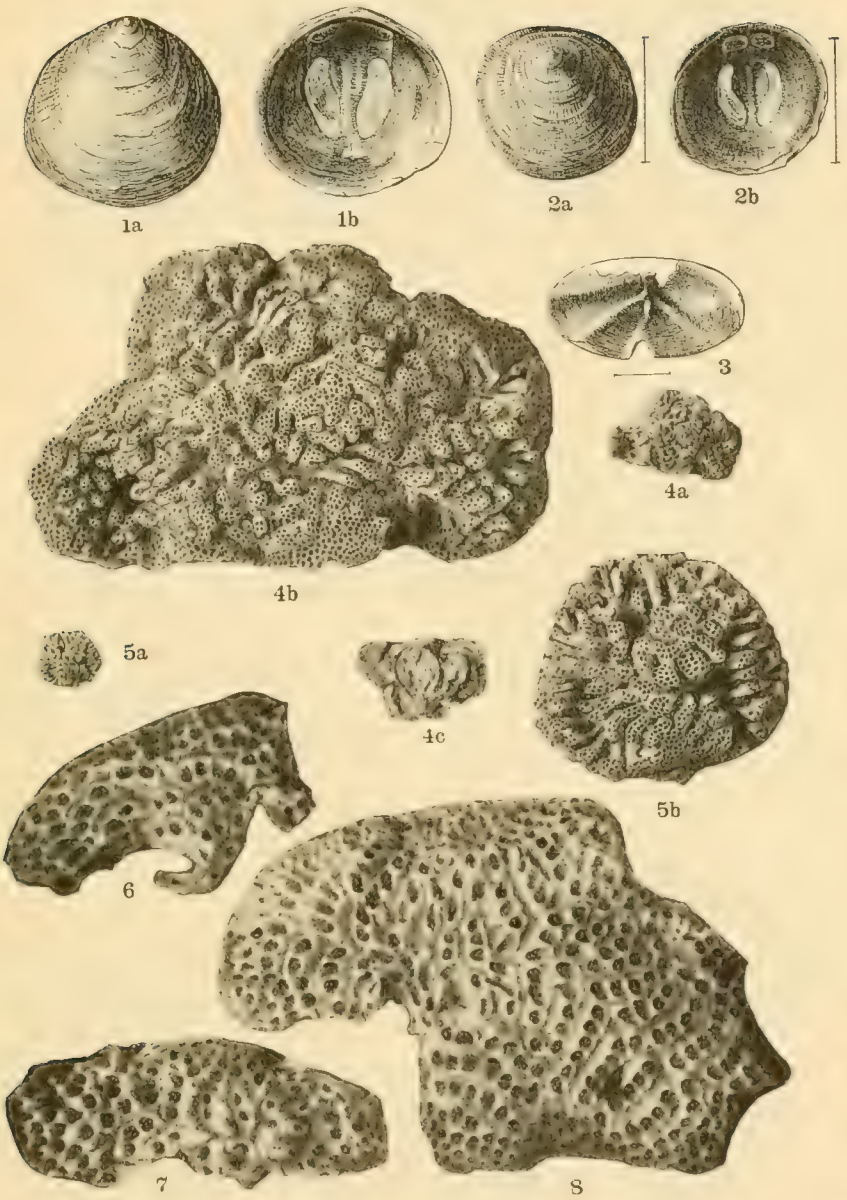
1a. Exterior of dorsal valve. Jones Wharf.
1b. Interior of the same.
2a. Exterior of dorsal valve of another specimen. Same locality.
2b. Interior of the same.
3 Interior of ventral valve. Same locality.

Figs. 4, 5. Theonoa glomerata n. sp. 406

4a. Upper surface of a large specimen. St. Mary's River. × 4/5
4b. Another view of the same. × 16/5
4c. Under surface of the same. × 4/5
5a. Upper surface of a small specimen. Same locality. × 4/5
5b. Another view of the same. × 16/5

Figs. 6-8. Idmonea (?) expansa n. sp. 404

6. View of a young specimen. Cove Point. × 16
7. View of another young specimen. Same locality. × 16
8. A large specimen from the same locality and attached to the same shell, showing the pinnate arrangement of the zooecia adopted in later stages of growth. × 16



MOLLUSCOIDEA—BRACHIOPODA AND BRYOZOA.

PLATE CX.

PAGE

Fig. 1. MEMBRANIPORA FOSSULIFERA n. sp. 408

1. Portion of the surface of a fine specimen. Reed's. × 16

Figs. 2-5. MEMBRANIPORA OBLONGULA n. sp. 407

2. Surface of an average specimen. Governor Run. × 20
3. Surface of another specimen having thicker walls than usual. Same locality. × 16
4. Portion of the surface of a specimen having relatively larger apertures and thinner walls than in the more typical form of the species. Plum Point. × 16
5. Portion of the surface of another specimen showing irregularity in development of some of the zooecia. Governor Run. × 16

Fig. 6. MICROPORELLA PECILIATA n. sp. 415

6. Portion of a zoarium of this species growing on *Pecten madisonius*. The ovicells are more abundant on specimen than usual. Cove Point. × 16

Fig. 7. MICROPORELLA INFLATA n. sp. 416

7. Portion of the surface of a specimen growing on a small mollusk. Jones Wharf. × 16

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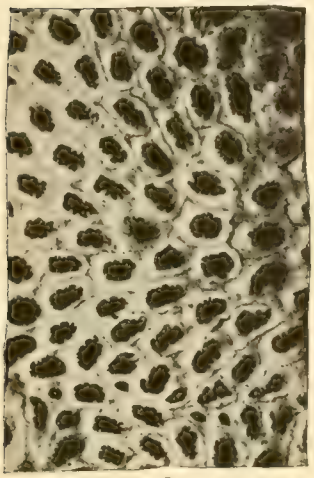

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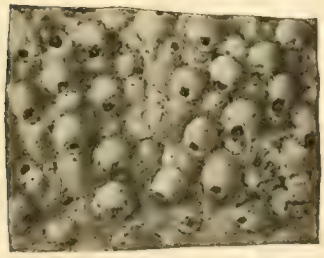

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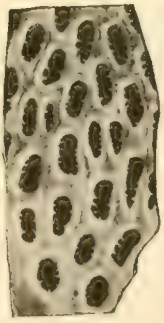

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MOLLUSCOIDEA—BRYOZOA.

PLATE CXI.

PAGE

Figs. 1, 2. MEMBRANIPORA PARVULA n. sp. 410

1. A portion of the surface. Reed's. × 16
2. Another portion of the same. × 16

Figs. 3, 4. MEMBRANIPORA CAMINOSA n. sp. 409

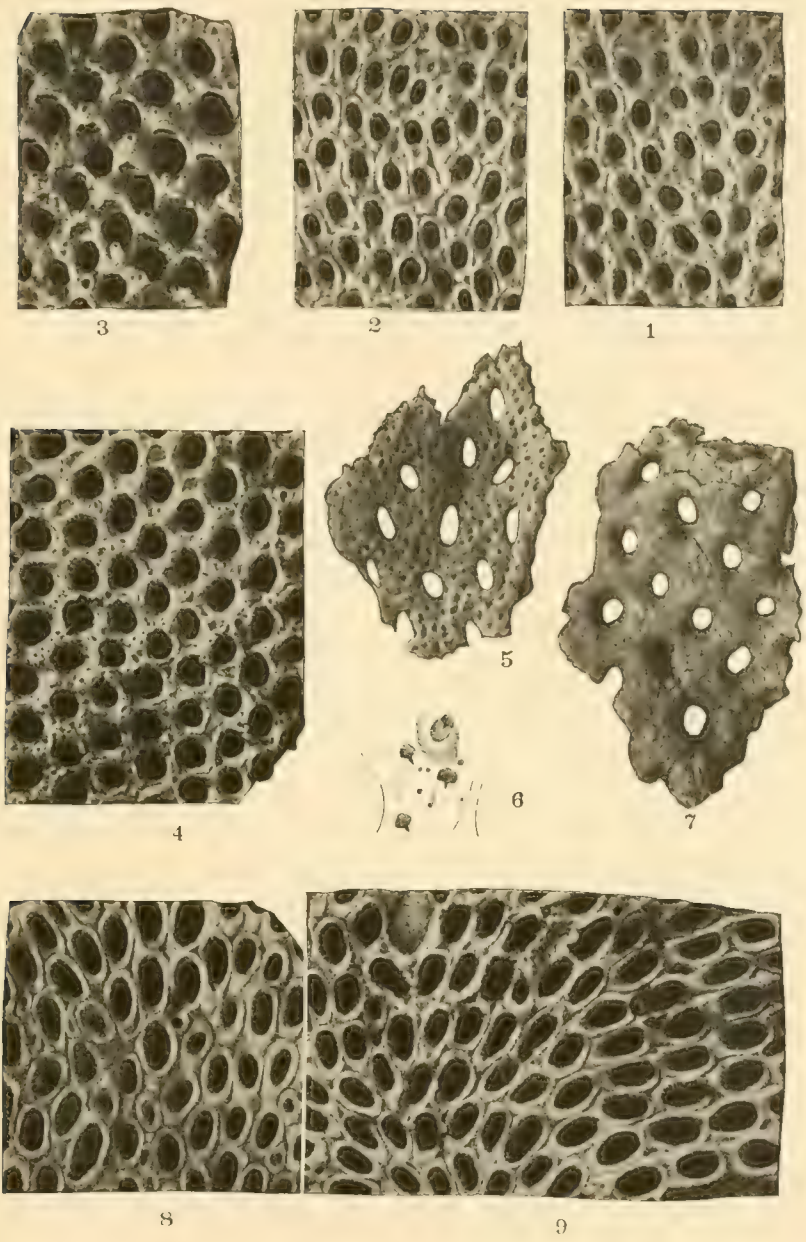
3. Portion of a well-preserved specimen having ovicells. Jones Wharf. × 16
4. Portion of another specimen not so well preserved and having very few ovicells. Same locality. × 16

Figs. 5-7. RETEPORA DOVERENSIS n. sp. 422

5. Celluliferous surface of a small fragment. Dover Bridge. ×32/5
6. A few cells of same. ×24
7. Portion of the reverse side of another fragment from the same locality. × 32/5

Figs. 8, 9. MEMBRANIPORA GERMANA n. sp. 410

8. A portion of the surface of a specimen in good condition. × 16
9. Another portion of the same. × 16



MOLLUSCOIDEA—BRYOZOA.

PLATE CXII.

PAGE

Fig. 1. MEMBRANIPORA NITIDULA n. sp. 412

1. Surface of rather well-preserved fragment. Pawpaw Point. × 16

Figs. 2-4. MEMBRANIPORA BIFOLIATA n. sp. 411

2. Dorsal face of one of the two layers of zooecia. Jones Wharf. × 16
3. Surface of young specimen. Same locality. × 16
4. Surface of an old specimen. Same locality. × 16

Fig. 5. MEMBRANIPORA FISTULA n. sp. 413

5. The fragment upon which this species is founded. St. Mary's River. × 32/5

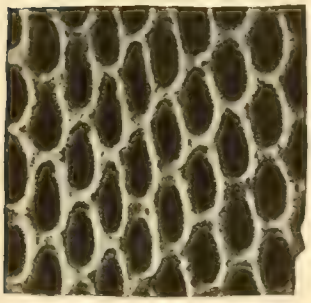
Fig. 6. CUPULARIA DENTICULATA (?) (Conrad) 414

6. Portion of the surface of the specimen described. St. Mary's River. × 16

Figs. 7a, 7b. AMPHIBLESTRUM AGELLUS n. sp. 414

7a. One of several small patches of this species growing on *Pecten madisonius*. Cove Point. × 16

7b. A number of the zooecia of same in outline. × 34



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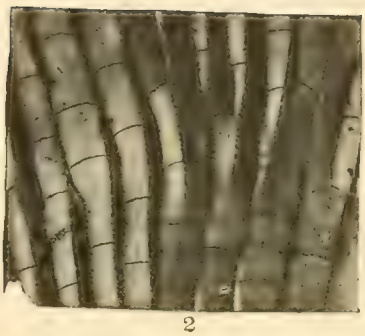

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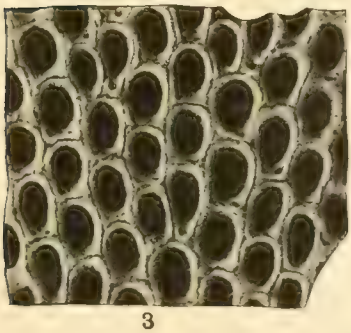

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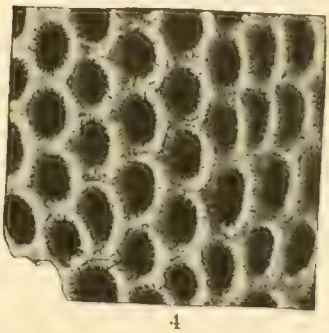

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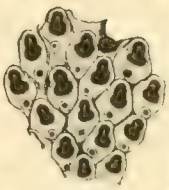

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MOLLUSCOIDEA—BRYOZOA.

PLATE CXIII.

PAGE

Figs. 1, 2. LEPRALIA (?) REVERSA n. sp. 426

1. Portion of one of several patches of this species, showing zooecia with thin raised borders. Cove Point. × 16
2. Portion of another zoarium of which nearly all the zooecia are provided with ovicells. On *Pecten madisonius*. Same locality. × 16

Fig. 3. MICROPORELLA PRÆCILIATA n. sp. 415

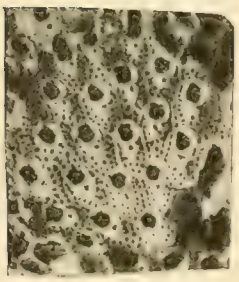
3. Portion of specimen not well preserved and somewhat doubtfully referred to this species. Ovicells are wanting. Jones Wharf. × 16

Figs. 4, 5. ADEONELLOPSIS UMBILICATA (Lonsdale) 417

4. Portion of a mass of this species, showing zooecia in youthful stages of development. Petersburg, Virginia. × 16
5. Portion of another mass, showing zooecia in an advanced stage of development. Same locality. × 16

Figs. 6-8. MICROPORELLA (?) BIFOLIATA n. sp. 417

6. Surface of a fragment, illustrating appearance in young specimens. Cordova. × 16
7. Portion of another fragment having ovicells. Same locality. × 16
8. Portion of a third piece from Cordova, showing adult appearance. × 16



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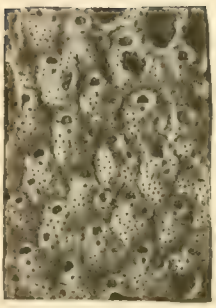

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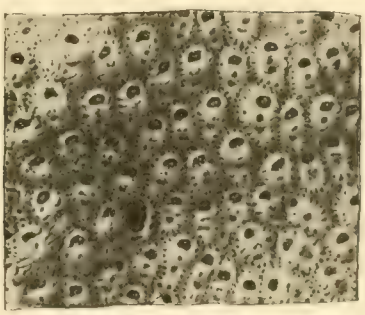

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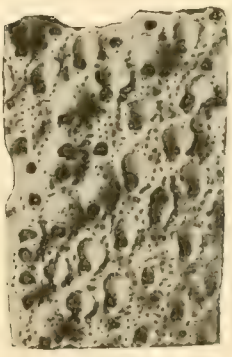

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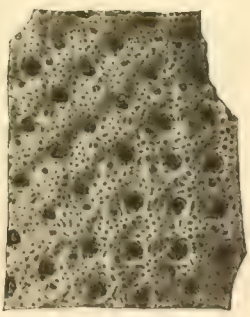


8

MOLLUSCOIDEA—BRYOZOA.

PLATE CXIV.

PAGE

Fig. 1. SCHIZOPORELLA SUBQUADRATA n. sp. 420

1. Finely preserved specimen of this species. Governor Run. ×5

Figs. 2-4. SCHIZOPORELLA LATISINUATA n. sp. 421

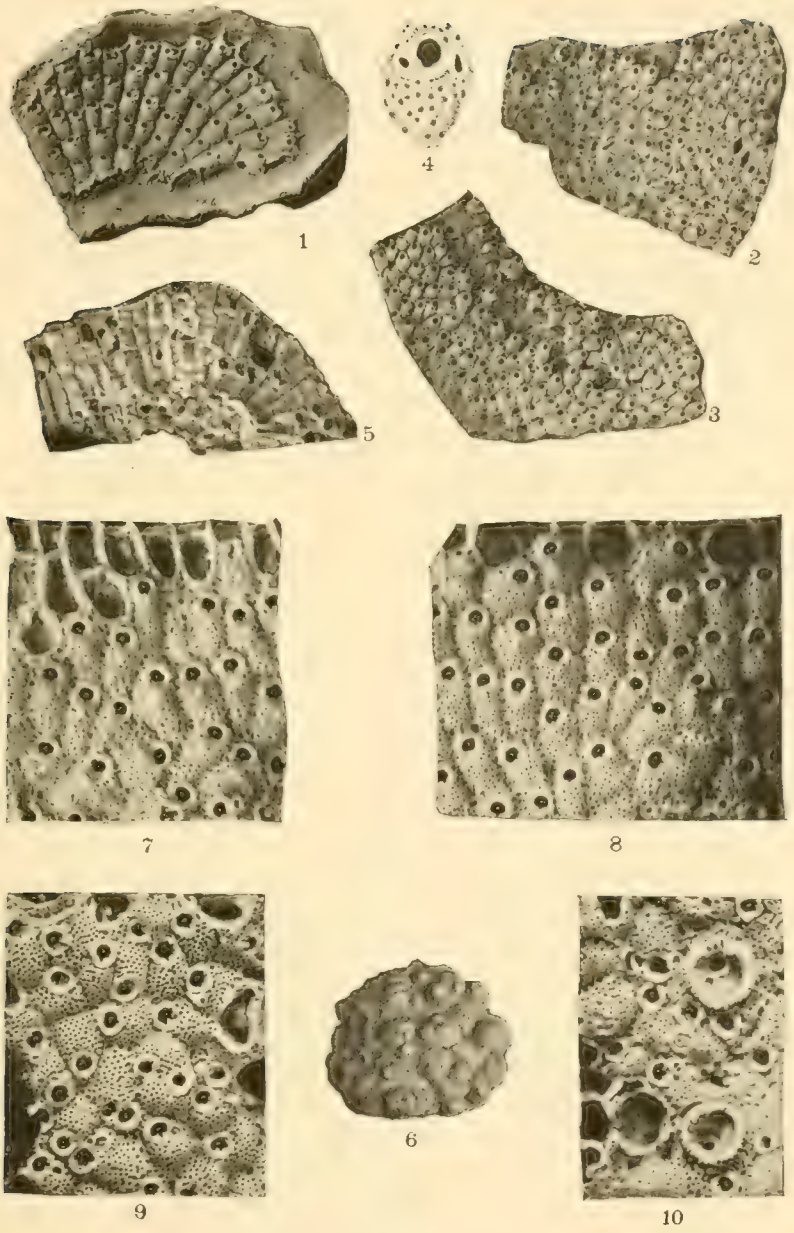
2. A patch of this species. Jones Wharf. × 32/5
3. Another patch from the same locality. × 32/5
4. One zooecium of same. × 24

Fig. 5. ADEONELLOPSIS UMBILICATA (Lonsdale) 417

5. Edge view of vertically fractured specimen, showing columnar structure produced by direct superposition of successive zooecia. Petersburg, Virginia. × 32/5

Figs 6-10. SCHIZOPORELLA INFORMATA (Lonsdale) 419

6. A strongly nodulated mass.
7. A portion of the surface of another specimen. × 16
8. Another portion of the same. × 16
9. A portion of the surface of a third specimen from Petersburg, Virginia, showing less regular arrangement of zooecia and, in the latter figure, remains of three of the large globular ovicells. × 16
10. Another portion of the same. × 16



MOLLUSCOIDEA—BRYOZOA.

CXV.

PAGE

Figs. 1-5. Retepora doverensis n. sp. 422

1. View of a small specimen. Dover Bridge. × 4/5
2. Another specimen. Same locality. × 4/5
3. A third specimen. Same locality. × 4/5
4. A fourth fragment without ovicells and with few large avicularia. The latter are present chiefly on the worn lower end of the specimen. × 32/5
5. A fifth piece from the same locality with numerous ovicells and avicularia. × 32/5

Figs. 6, 7. Amphiblestrum constrictum n. sp. 413

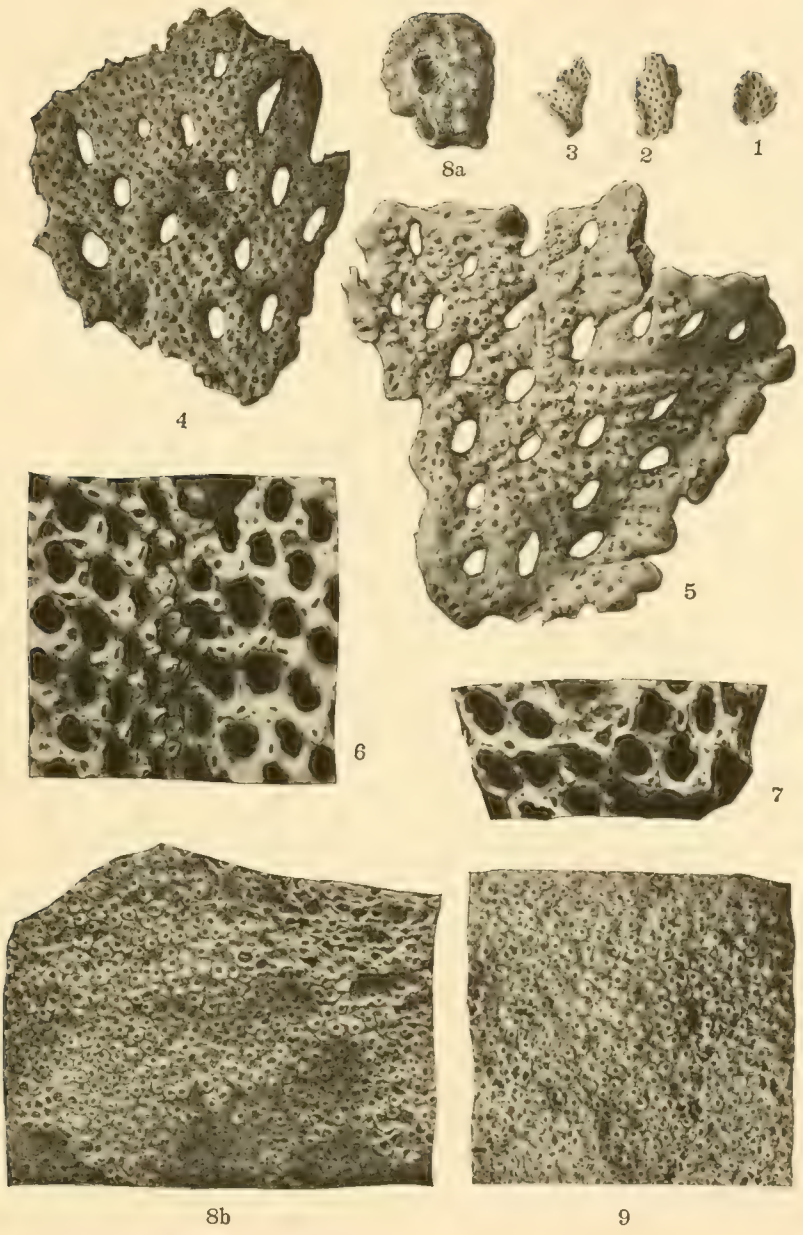
6. Portion of a patch of this species growing partly on one of the radial ribs and partly in a groove between the ribs of valve of *Pecten madisonius*. In the middle of the figure the prominent avicularia are shown in profile. Cove Point. × 16
7. A few zooecia showing normal form of same. × 16

Figs. 8a, 8b, 9. Lepralia maculata n. sp..... 423

8a. A specimen growing, as usual, upon a small mollusk and having the surface elevations or "maculae" unusually well developed. Plum Point. × 4/5

8b. Portion of surface of same. × 32/5

9. Portion of surface of a larger mass from the same locality. × 32/5



MOLLUSCOIDEA—BRYOZOA.

PLATE CXVI.

PAGE

Fig. 1. PALMICELLARIA PUNCTATA n. sp. 428

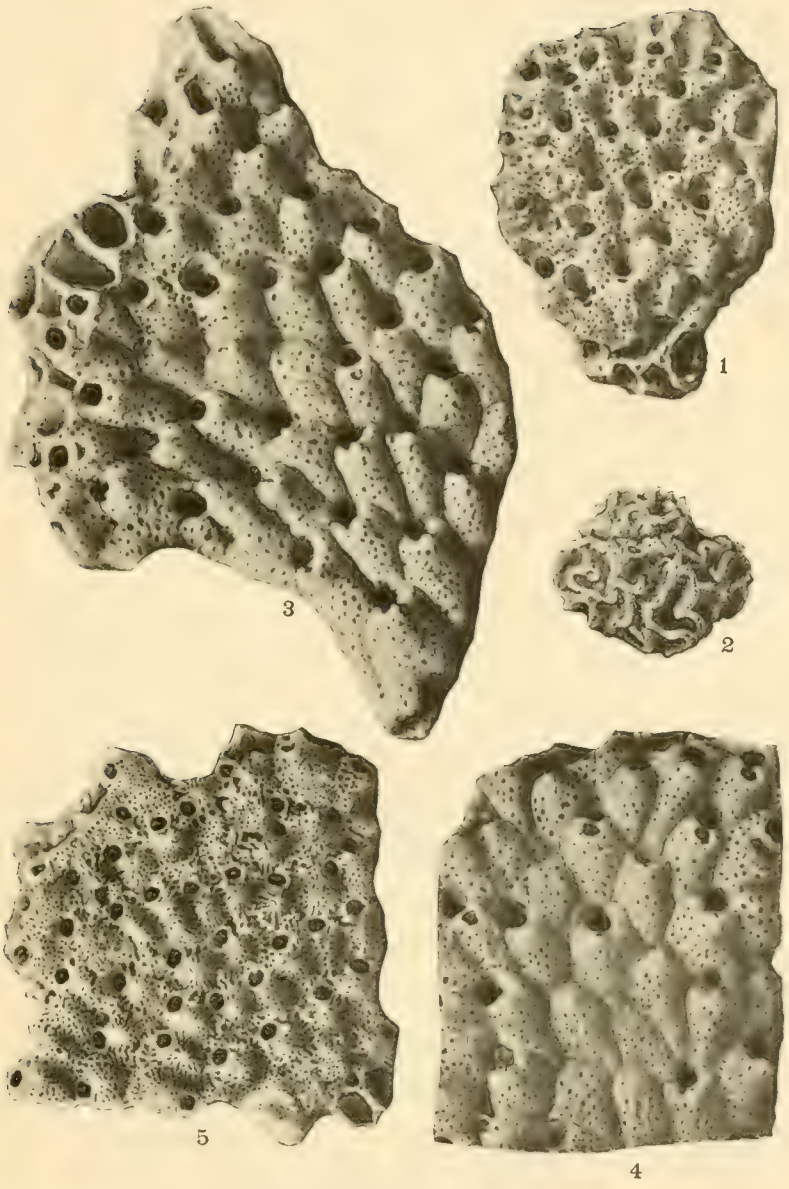
1. View of the specimen described. Reed's. × 16

Figs. 2-4. PALMICELLARIA CONVOLUTA n. sp. 427

2. View of a specimen illustrating the mode of growth believed to characterize this species. Reed's. × 4/5
3. View of a fragment. Same locality. × 16
4. Portion of another fragment showing several of the problematical closed cells. Same locality. × 16

Fig. 5. LEPRALIA MONTIFERA n. sp. 424

5. The specimen upon which this species is founded. The photographic base of the drawing was too dark to admit of bringing the elevation of the front of the zooecia into the relief shown by the original. St. Mary's River. × 16



MOLLUSCOIDEA—BRYOZOA.

PLATE CXVII.

PAGE

Fig. 1. Schizoporella doverensis n. sp. 421

1. Portion of surface. Dover Bridge. × 16

Fig. 2. Lepralia marylandica n. sp. 425

2. Portion of a patch growing on *Pecten madisonius*. Cove Point. × 16

Figs. 3, 4. Cellepora massalis n. sp. 428

3. Surface of an excellently preserved small mass. St. Mary's River. × 32/5

4. Surface of another mass showing the usual appearance when worn. Greensboro. × 32/5

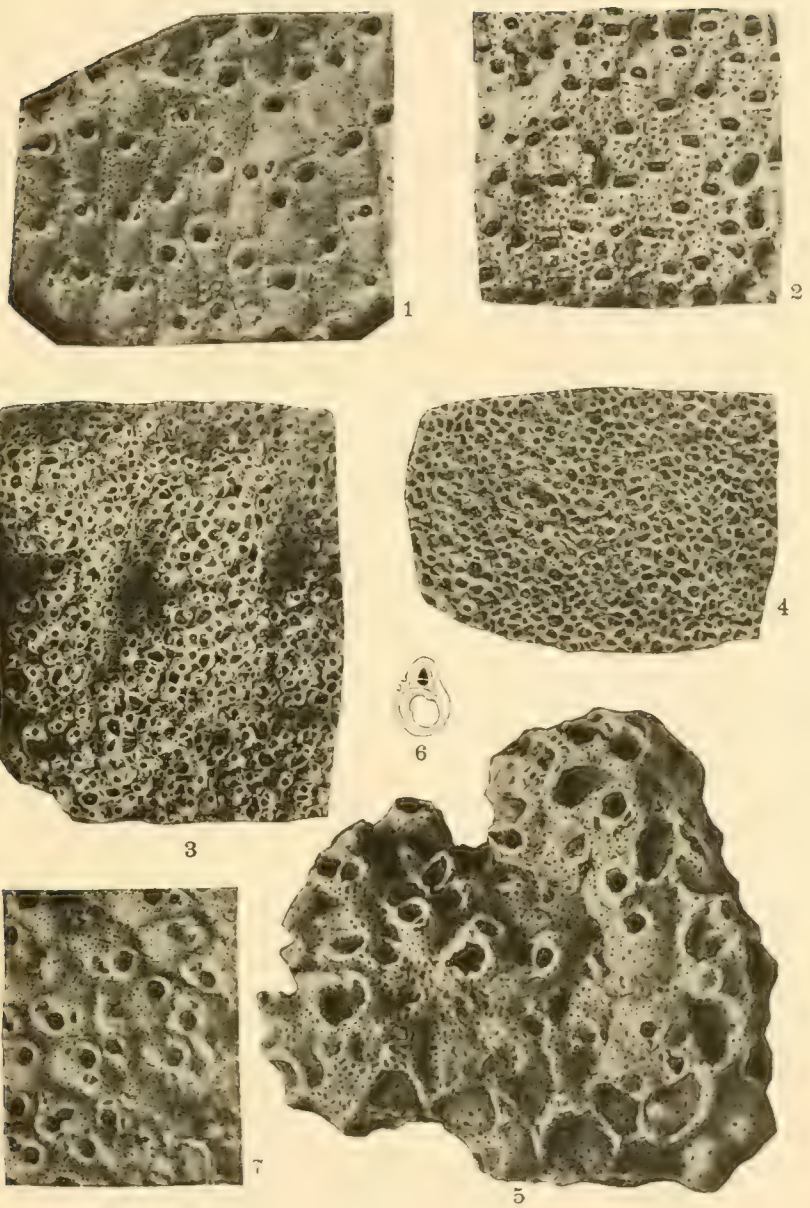
Figs. 5, 6. Cellepora cribrosa n. sp. 429

5. A small compressed mass. Reed's. × 16

6. Outline figure of orifice. × 24

Fig. 7. Schizoporella cumulata n. sp. 422

7. Portion of the surface of the specimen described. Jones Wharf. × 16



MOLLUSCOIDEA—BRYOZOA.

PLATE CXVIII.

PAGE

Figs. 1-4. CRISINA STRIATOPORA n. sp. 406

1. The specimen upon which the species is founded. Jones Wharf. × 21/4
2. Lateral view of one of the branches of the same specimen. × 23
3. Upper surface of the same. × 17
4. View of the broken end of one of the branches of the same. × 17

Figs. 5, 6. SCHIZOPORELLA SUBQUADRATA n. sp. 420

5. Part of the specimen figured on Plate CXIV. × 17
6. One zooecium of a specimen from Governor Run. × 19½

Fig. 7. LEPRALIA MACULATA n. sp..... 423

7. A small portion of the surface of one of the specimens figured on Plate CXV. The figure is intended to show the form of the orifice and the two kinds of avicularia. × 17

Figs. 8-10. LEPRALIA (?) REVERSA n. sp. 426

8. Several zooecia of a specimen having ovicells. × 28½
9. Several zooecia of another specimen having ovicells. × 28½
10. Several zooecia having boundaries unusually well defined. × 28½

Fig. 11. MICROPORELLA PRÆCILIATA n. sp. 415

11. Two zooecia of the specimens figured on Plate CXIII, Fig. 3. × 28½

Figs. 12, 13. MICROPORELLA (?) BIFOLIATA n. sp. 417

12. A zooecium and an avicularium. × 28½
13. Two zooecia with ovicells. × 28½

Fig. 14. AMPHIBLESTRUM AGELLUS n. sp. 414

14. View of a single zooecium and portions of several adjoining ones. × 28½

Fig. 15. AMPHIBLESTRUM CONSTRICTUM n. sp. 413

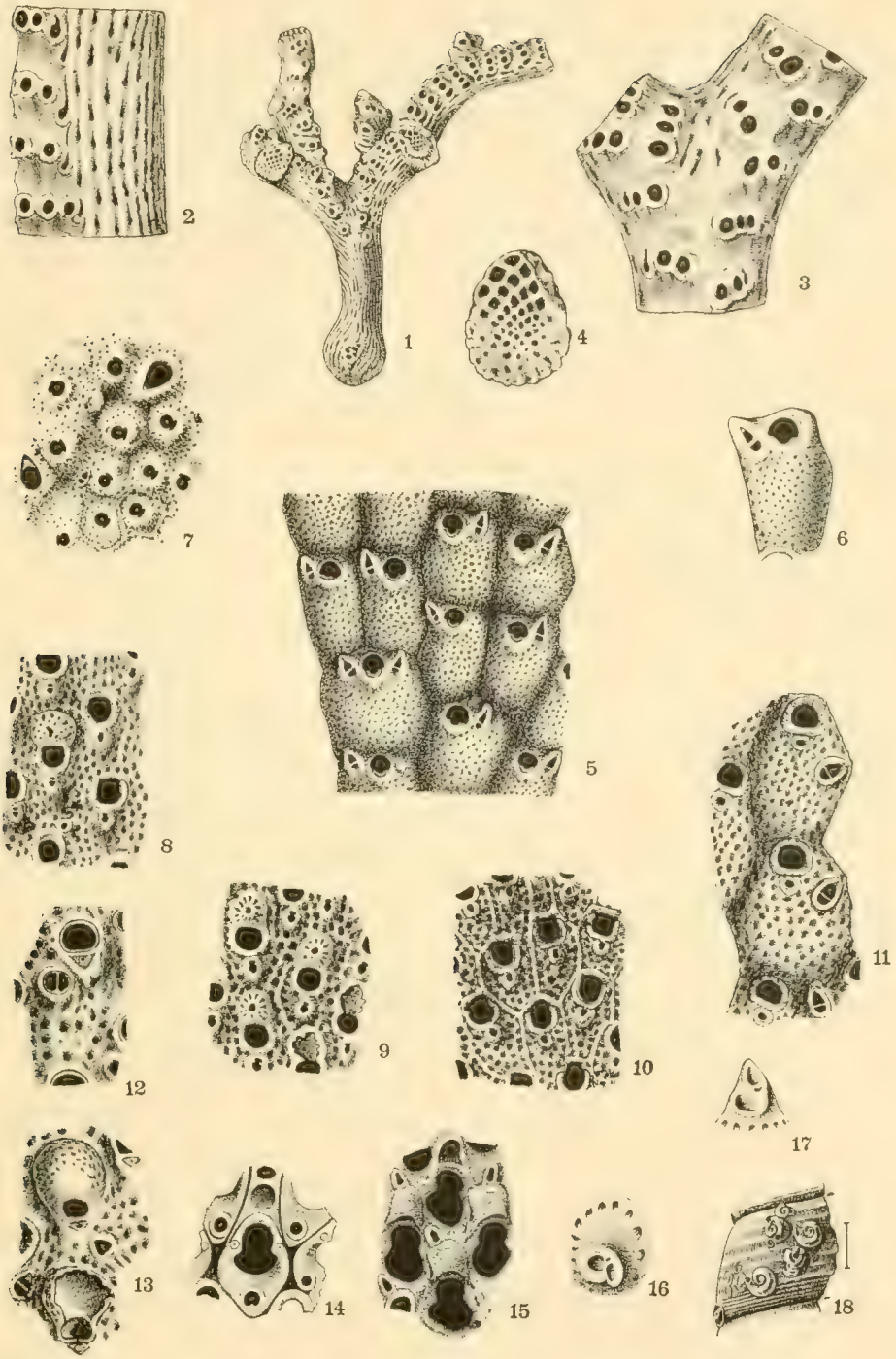
15. Several zooecia with ovicells. × 17

Figs. 16, 17. CELLEPORA MASSALIS n. sp. 428

16. Front view of a zooecium of the specimen figured on Plate CXVII, Fig. 3. St. Mary's River. × 17
17. Profile view of the same. St. Mary's River. × 17

Fig. 18. SPIRORBIS CALVERTENSIS n. sp. 430

18. View of several individuals attached to the surface of a *Turritella*. Plum Point. × 3/2



MOLLUSCOIDEA—BRYOZOA, AND VERMES.

PLATE CXIX.

PAGE

Figs. 1a, 1b, 1c. ECHINOCARDIUM ORTHONOTUM Conrad..... 430

1a. Lateral surface of test. Jones Wharf.

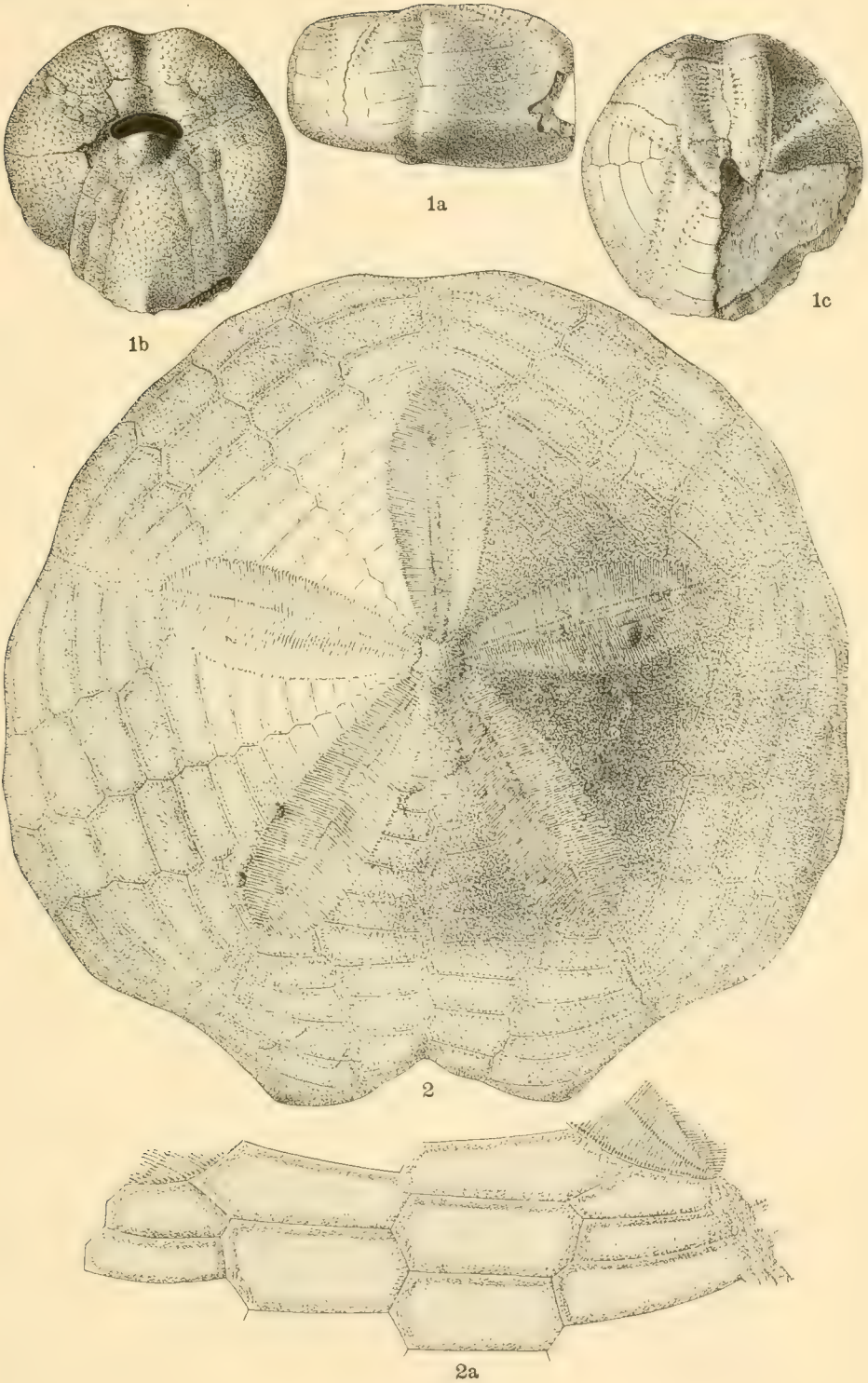
1b. Lower surface of same specimen.

1c. Upper surface of same specimen.

Figs. 2, 2a. SCUTELLA ABERTI Conrad..... 432

2. Upper surface of test. Jones Wharf.

2a. Enlarged plate of same specimen.



1a

1b

1c

2

2a

ECHINODERMATA.

PLATE CXX.

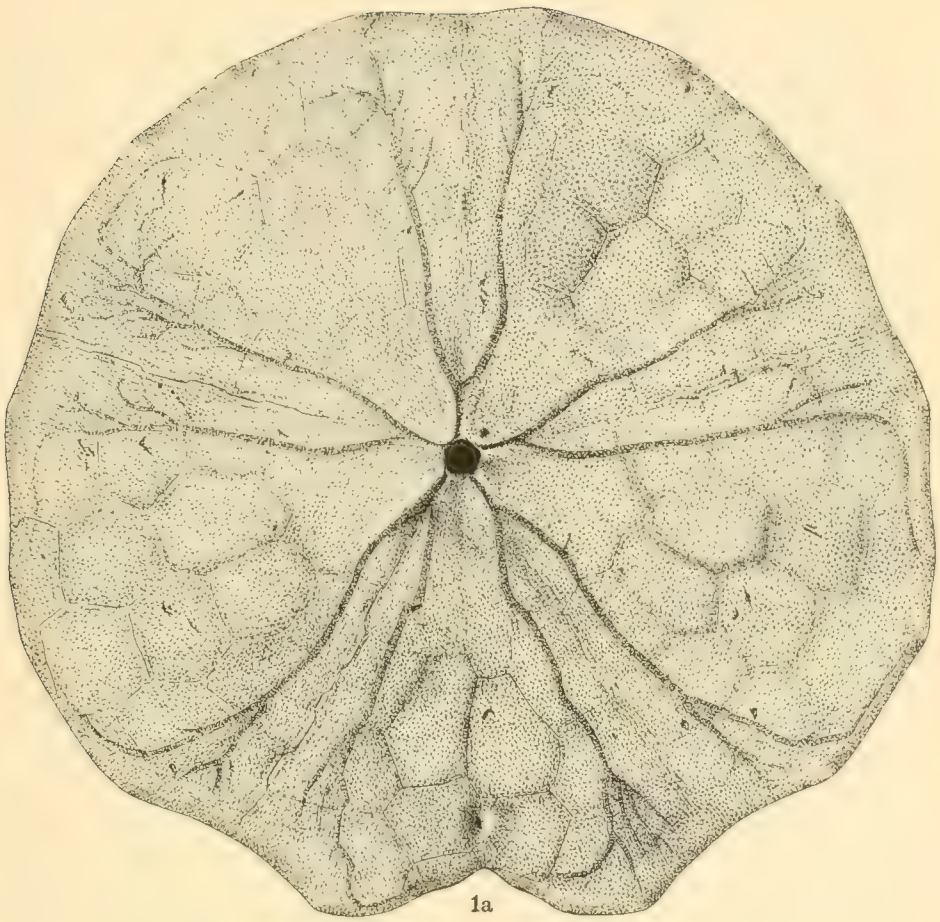
PAGE

Figs. 1a-2b. SCUTELLA ABERTI Conrad 432

1a. Lower surface of test. Jones Wharf.
1b. Lateral surface of test of same specimen.
2a. Interambulacral plate.
2b. Another view of the same (?).

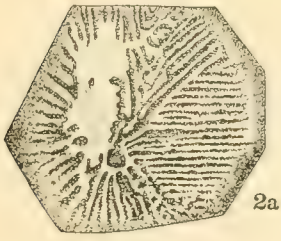
Fig. 3. OPHIODERMA (?) sp. 433

3. Fragment of arms. St. Mary's River.



1a

1b



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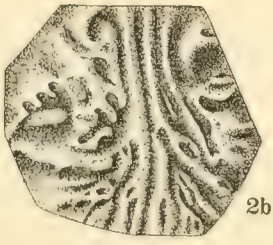

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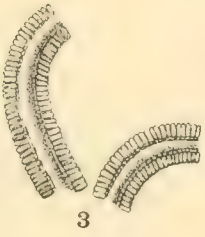


3

ECHINODERMATA.

PLATE CXXI.

PAGE

Figs. 1-9. HYDRACTINIA MULTISPINOSA n. sp. 433

1. The type specimen, growing, as usual, upon the shell of *Polynices* sp. and showing the average external appearance. U. S. National Museum.

2, 3. Two specimens showing extremes observed in number and size of surface spines. The latter possibly represent a distinct species or variety, approaching the European *H. circumvesticus* (Wood).

4-7. Surface of four specimens showing slight variations partly due to preservation. × 8

8, 9. Edge views of four pieces of two specimens showing interlaminar spaces and other characters very well. The solid lower portions of the two upper pieces represent the space of the absorbed shell replaced by nearly solid coral tissue. U. S. National Museum. Plum Point. × 8

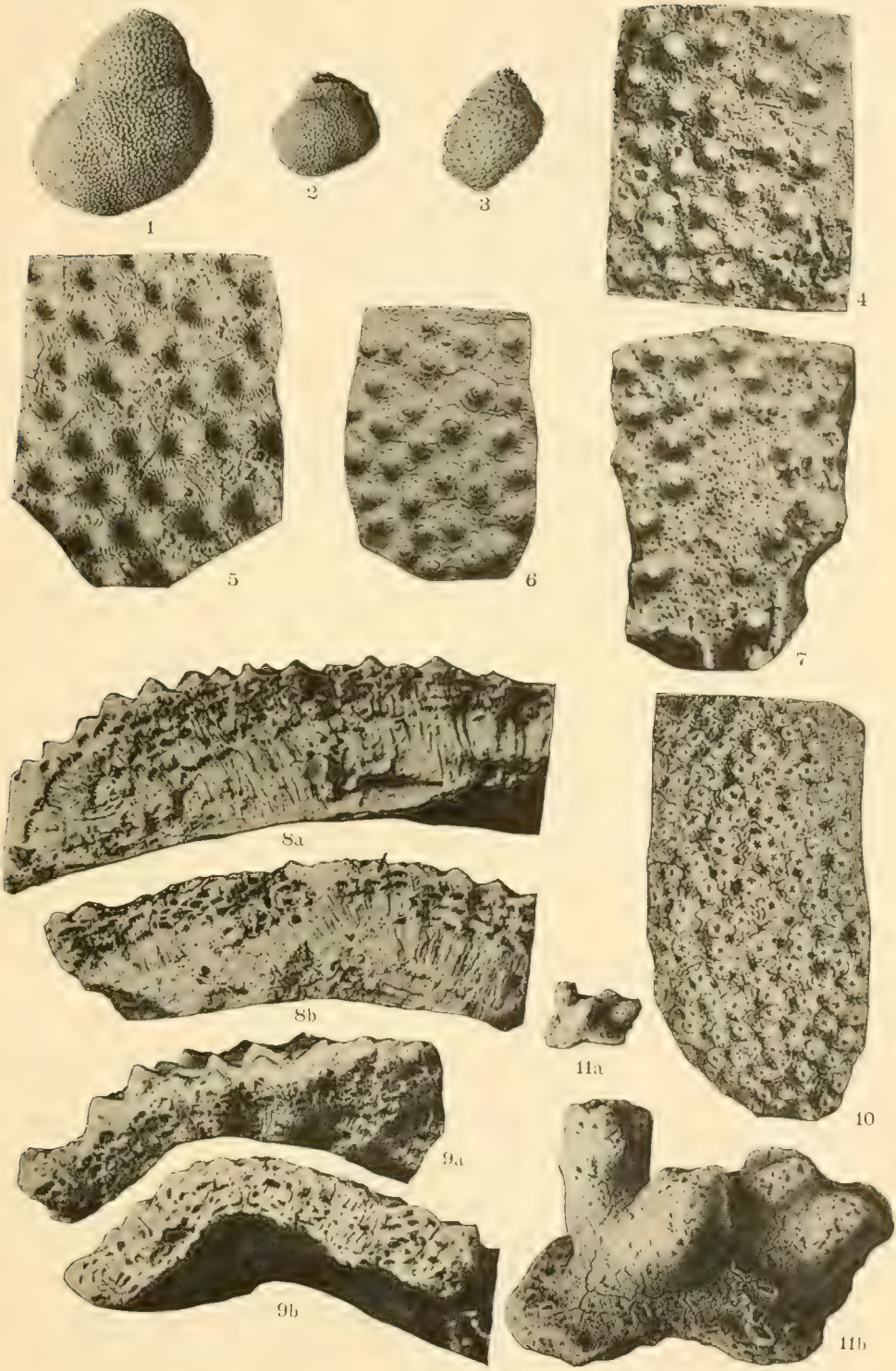
Fig. 10. MILLEASTER INCRUSTANS n. gen. et. sp..... 436

10. Surface of a specimen. U. S. National Museum. Plum Point. × 8

Figs. 11a, 11b. MILLEASTER (?) SUBRAMOSUS n. sp. 437

11a. The type specimen. Cove Point.

11b. Another view of the same. The large openings are of small barnacles partly covered by the hydrozoan. × 4



COELENTERATA—HYDROZOA.

PLATE [1] CXXII.

PAGE

Figs. 1-3. PARACYATHUS VAUGHANI Gane 438

1. View of several specimens attached to an oyster shell. Carter's Landing, Virginia. × ¼
2. The cluster of three individuals more enlarged.
3. The largest individual represented in Fig. 1 more enlarged.

The figured specimen in the collection of Johns Hopkins University.

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[1] The following plates illustrating the corals are reproductions from photographs. Mr. Levin C. Handy made the negatives; prints on velox paper were made by Mr. Norman W. Carkhuff of the U. S. Geological Survey. Miss Frances Wieser retouched some of the prints.

2

1

3

COELENTERATA—ANTHOZOA.

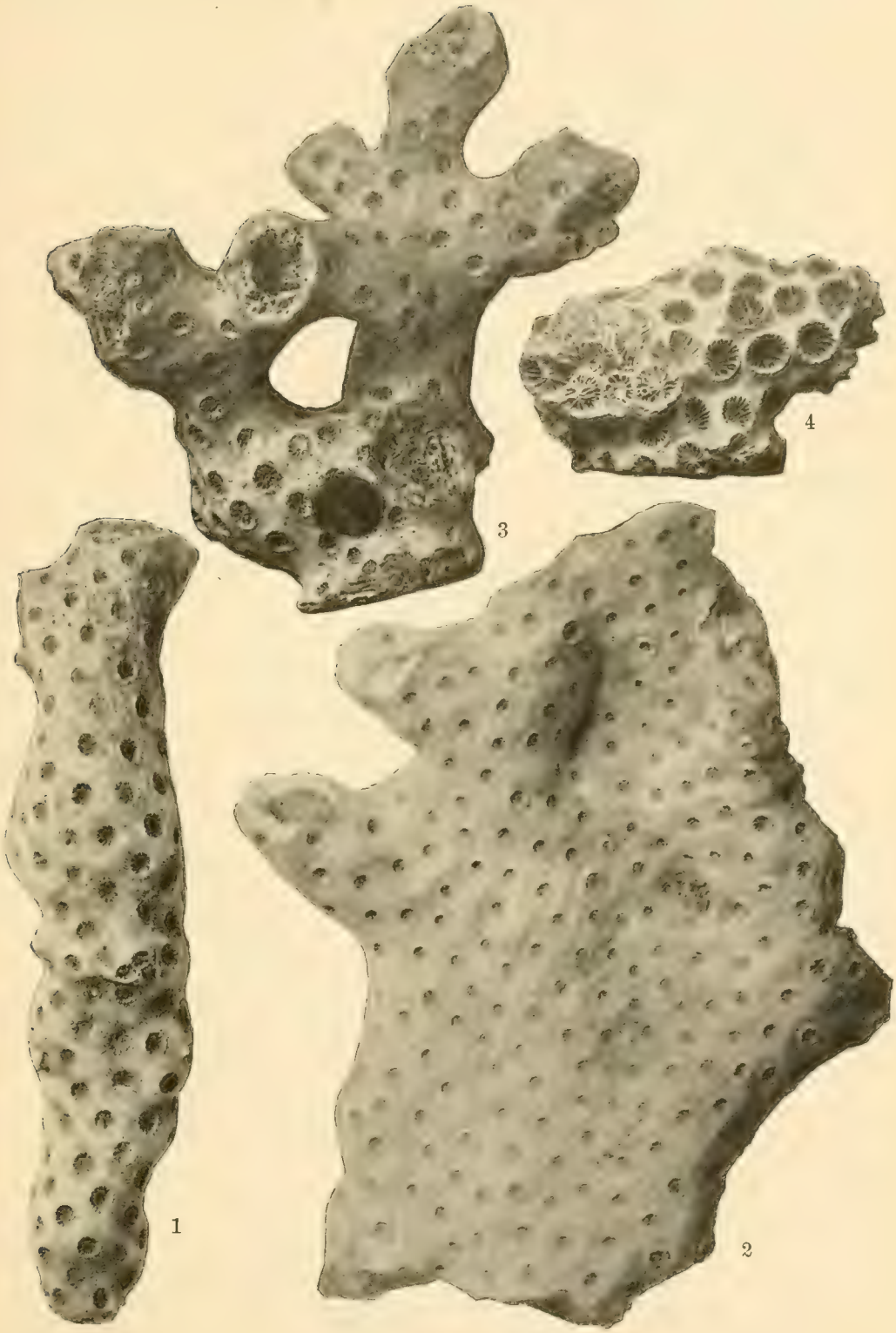
PLATE CXXIII.

PAGE

Figs. 1-4. Astrhelia palmata (Goldfuss) 439

1. The most normal specimen in the collection. The other specimens from the same locality show considerable fusion of the branches. David Kerr's place, Talbot County, Maryland. Length 114 mm.
2. Palmate specimen. Choptank River. ¼ to ½ mile below Parker's Landing. Length 115 mm.
3. Specimen with coalescing branches. Patuxent Cliffs, St. Mary's County. Greatest length 69 mm.
4. Young specimen. Plum Point. Greatest horizontal measurement 44 mm.

All four specimens in the U. S. National Museum.



COELENTERATA—ANTHOZOA.

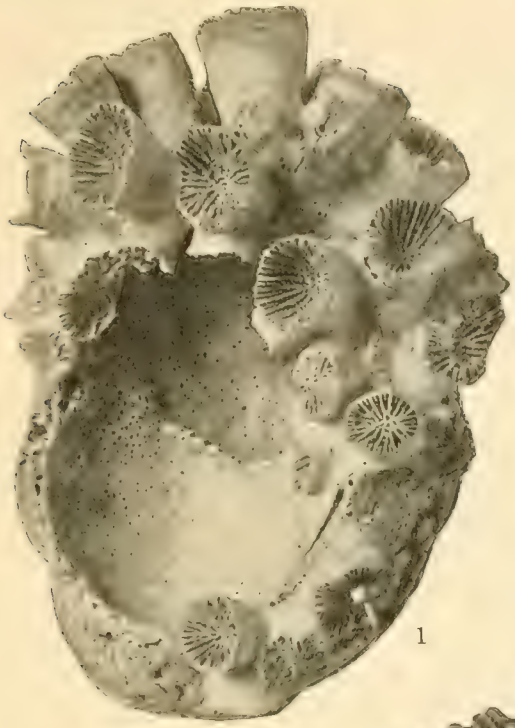
PLATE CXXIV.

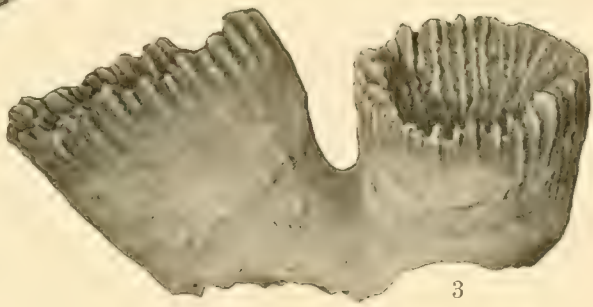
PAGE

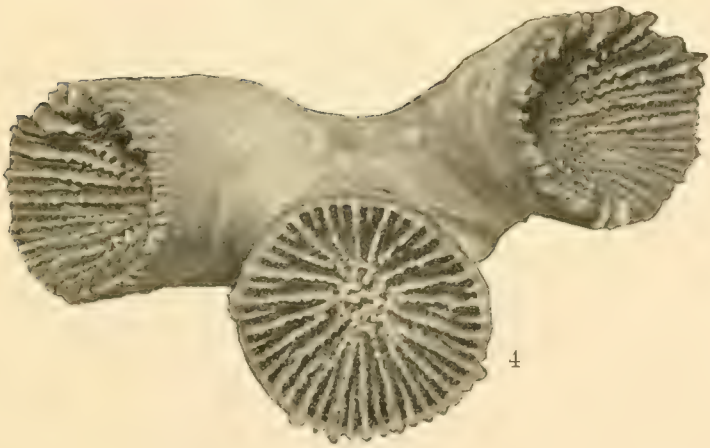
Figs. 1-4. ASTRANGIA LINEATA (Conrad). (All figures from the same specimen.) 441

1. General view of a colony attached to a *Crepidula* shell. Distance from top of uppermost corallite to lowest portion of shell as placed in Fig. 52 mm. × about 1⅔
2. View of interior of a calice to show septal dentations. × about 5
3. Enlarged view of costae. × 5
4. Calicular view. × 5

Figured specimen in collection of Johns Hopkins University.







COELENTERATA—ANTHOZOA.

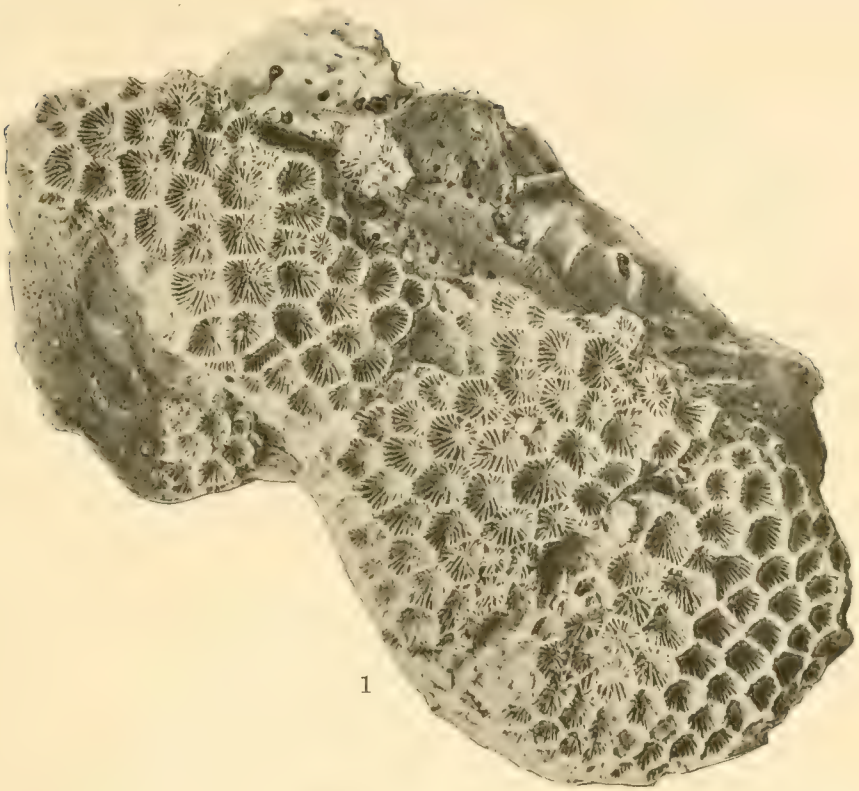
PLATE CXXV.

PAGE

Figs. 1, 2. ASTRANGIA (CŒNANGIA) Conradi n. sp. 442

1. General view of a specimen. Length 103 mm. × about 1¼
2. Several calices. × about 5

Figured specimen in collection of Wagner Free Institute of Science.



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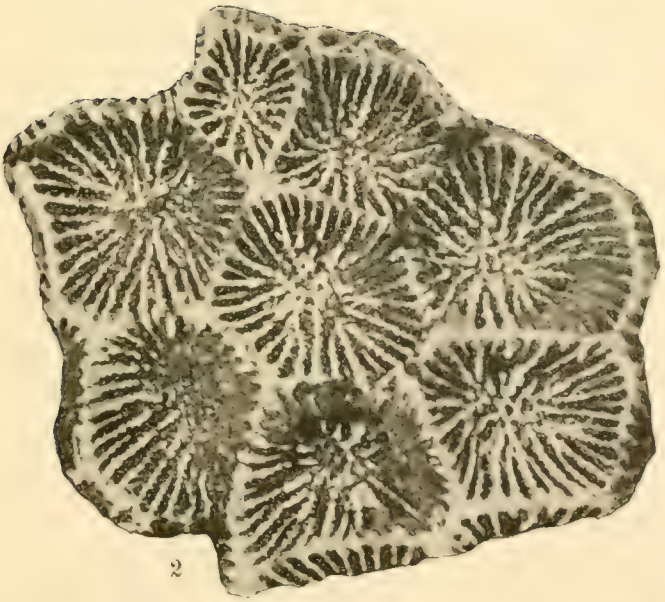


2

COELENTERATA—ANTHOZOA.

PLATE CXXVI.

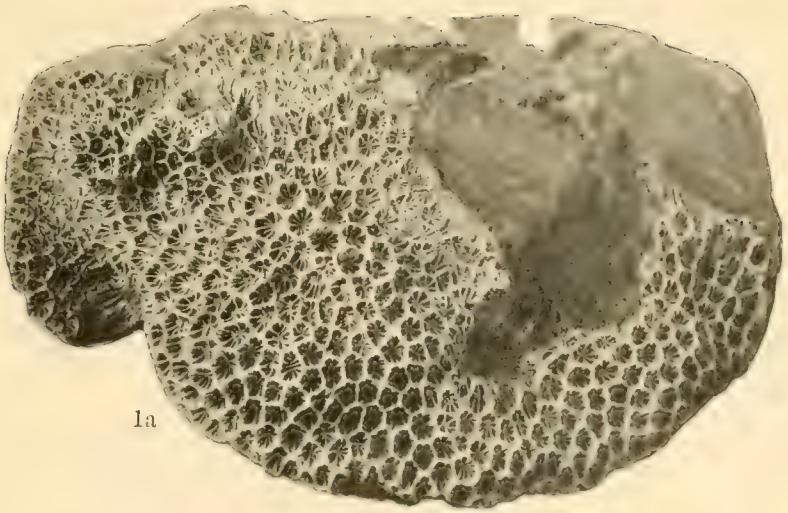
PAGE

Figs. 1-2. SEPTASTREA MARYLANDICA (Conrad) encrusting young, described by Conrad as *Astrea marylandica*..... 444

1a, 1b. Two views of the same specimen. Greatest length of the Pecten shell 112 mm. Note the protuberance that has been formed.

2. Calices of another specimen. The "d"'s indicate dissepiments, and show how new zoids are formed by dissepimental budding. The calice at the bottom of the figure has apparently divided by fission. The greatest distance across the figured portion is 16 mm. × about 5

Figured specimens in collection of Johns Hopkins University.



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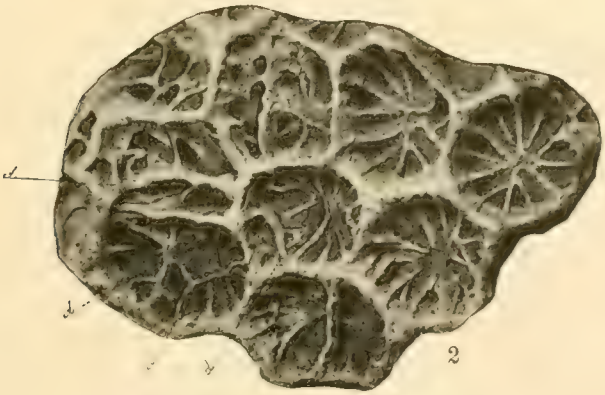
1b



2

COELENTERATA—ANTHOZOA.

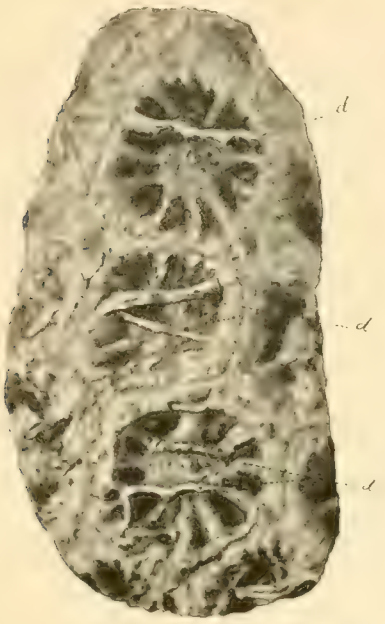
PLATE CXXVII.

PAGE

Figs. 1-3. SEPTASTREA MARYLANDICA (Conrad) 444

1. Several calices of a specimen enlarged to show initiation of reproduction by dissepimental budding. Distance across the three calices, 10 mm. × about 7
2. Calices of another specimen. A′, A″, young calices, but so far advanced that one can not be sure which are the mother calices. Immediately below A″ is a young calice, apparently being formed by dissepimental budding. × 7
3. Calices of still another specimen, showing budding between the corners of the calices. × about 6½

Figured specimens in collection of Johns Hopkins University.



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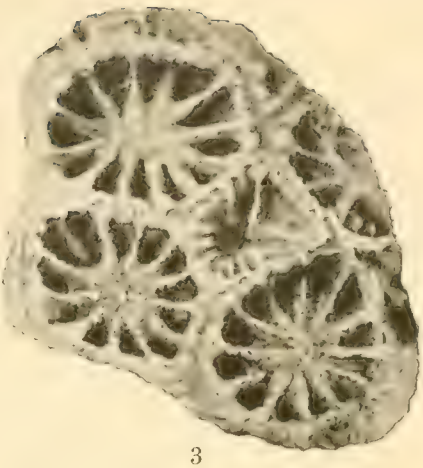

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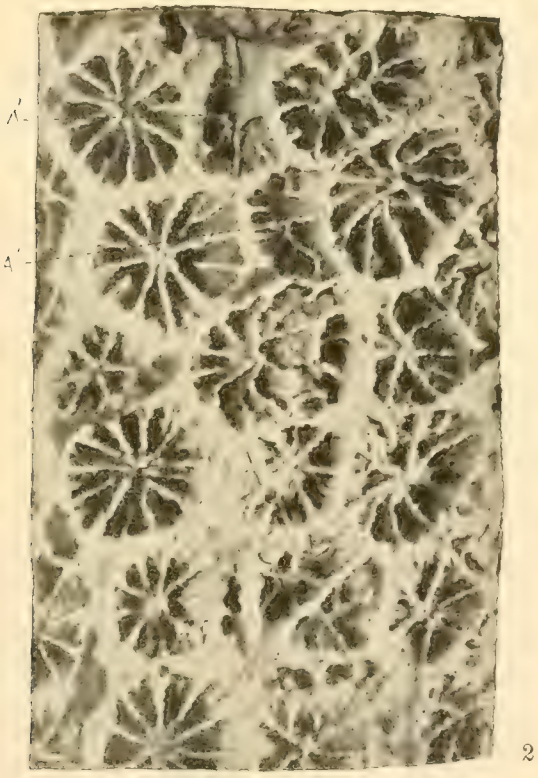


2

COELENTERATA—ANTHOZOA.

PLATE CXXVIII.

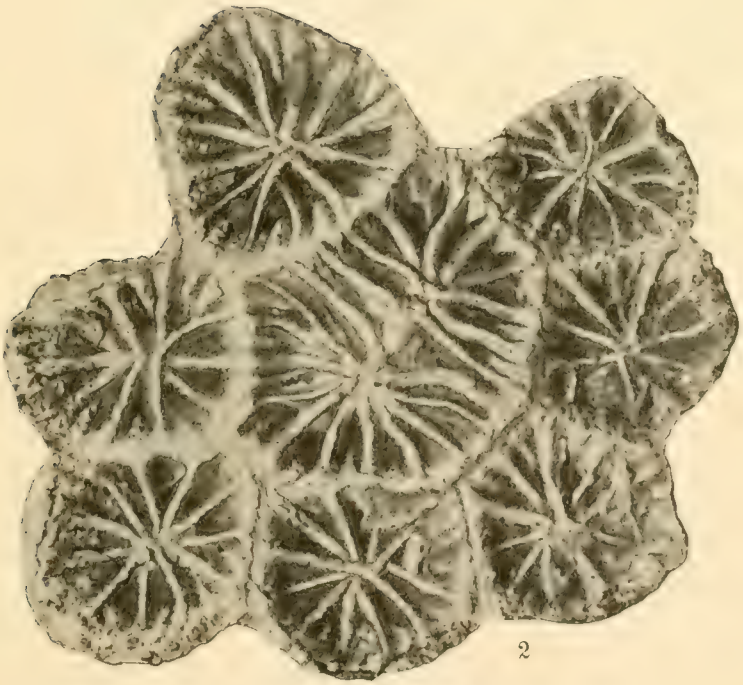
PAGE

Figs. 1, 2. SEPTASTREA MARYLANDICA (Conrad) 444

1. General view of a specimen 67 mm. high.
2. Calices from specimens represented on Plate CXXIX. The large calice shows incipient fission. × 5½

Figured specimens in collection of Johns Hopkins University.

1



2

COELENTERATA—ANTHOZOA.

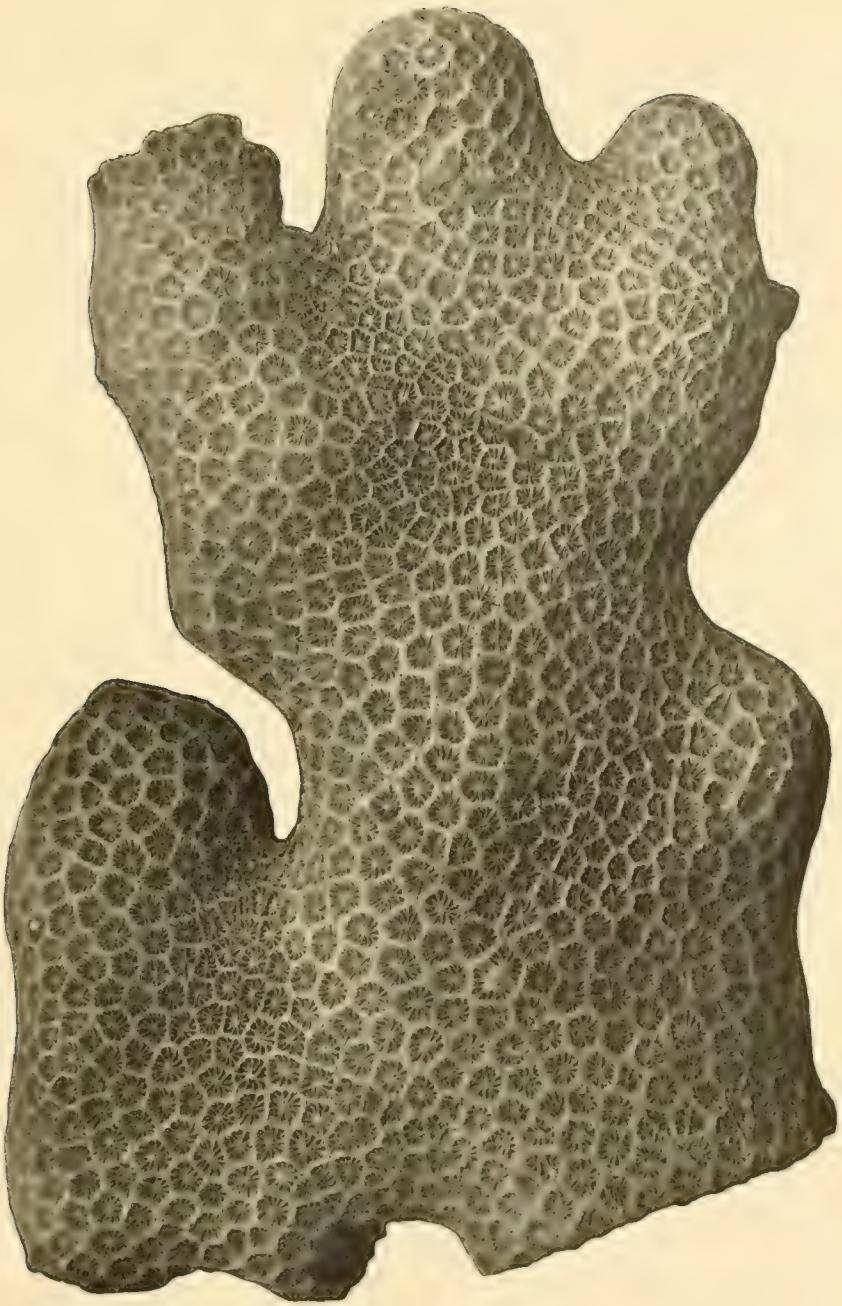
PLATE CXXIX.

PAGE

SEPTASTREA MARYLANDICA (Conrad) 444

General view of a specimen 175 mm. long, the figure slightly less than natural size.

Figured specimen in collection of Johns Hopkins University.



COELENTERATA—ANTHOZOA.

PLATE CXXX.

PAGE

Figs. 1, 2. DISTEPHANUS CRUX (Ehrenberg) 448
1. Pileated piece of skeleton. Cambridge artesian well (192 to 395 feet). × 375
2. Larger pileated piece of skeleton. Same locality. × 375

Fig. 3. DICTYOCHA FIBULA (?) Ehrenberg 449
3. Pileated piece of skeleton. Cambridge artesian well (192-395 feet). × 375

Fig. 4. LITHOCAMPE MARYLANDICA n. sp. 450
4. Type specimen. Lyons Creek. × 187½

Fig. 5. EUCYRTIDIUM CALVERTENSE n. sp. 450
5. Type specimen. Lyons Creek. × 187½

Figs. 6, 7. STICHOCAPSA MACROPORA Vinassa 451
6. A specimen from Richmond, Virginia.
7. Another specimen. Same locality.

Fig. 8. ANTHOCYRTIUM DORONICUM Haeckel 451
8. A specimen from Popes Creek. × 240

Fig. 9. LITHASTERISCUS RADIATUS Ehrenberg 453
9. A specimen from Crisfield well (790 feet). × 225

Fig. 10. SPONGASTERISCUS MARYLANDICUS n. sp. 453
10. View of type specimen. × 90

Figs. 11-13. DICTYOCORYNE PROFUNDA Ehrenberg 454
11. A specimen from Lyons Creek. × 90
12. Another specimen. Same locality. × 90
13. Another specimen. Same locality. × 90

Fig. 14. RHOPALODICTYUM MARYLANDICUM n. sp. 455
14. View of type specimen. Popes Creek. × 90

Fig. 15. RHOPALODICTYUM CALVERTENSE n. sp. 455
15. View of type specimen. Lyons Creek. × 90

Fig. 16. PORODISCUS CONCENTRICUS (Ehrenberg) 455
16. A specimen from Plum Point. × 162½

Fig. 17. PHACODISCUS CALVERTANUS n. sp. 456
17. A specimen from Lyons Creek. × 131

Fig. 18. CANNARTIDUM sp. 456
18. A specimen from Popes Creek. × 112½

Fig. 19. CANNARTISCUS AMPHICYLINDRICUS Haeckel 457
19. A specimen from Richmond, Virginia. × 195

Fig. 20. CANNARTISCUS MARYLANDICUS n. sp. 457
20. View of type specimen. Plum Point. × 187½

Fig. 21. ACANTHOSPHÆRA PARVULA Vinassa 458
21. A specimen from Popes Creek. × 195

Fig. 22. HEXALONCHE MICROSPHÆRA Vinassa 458
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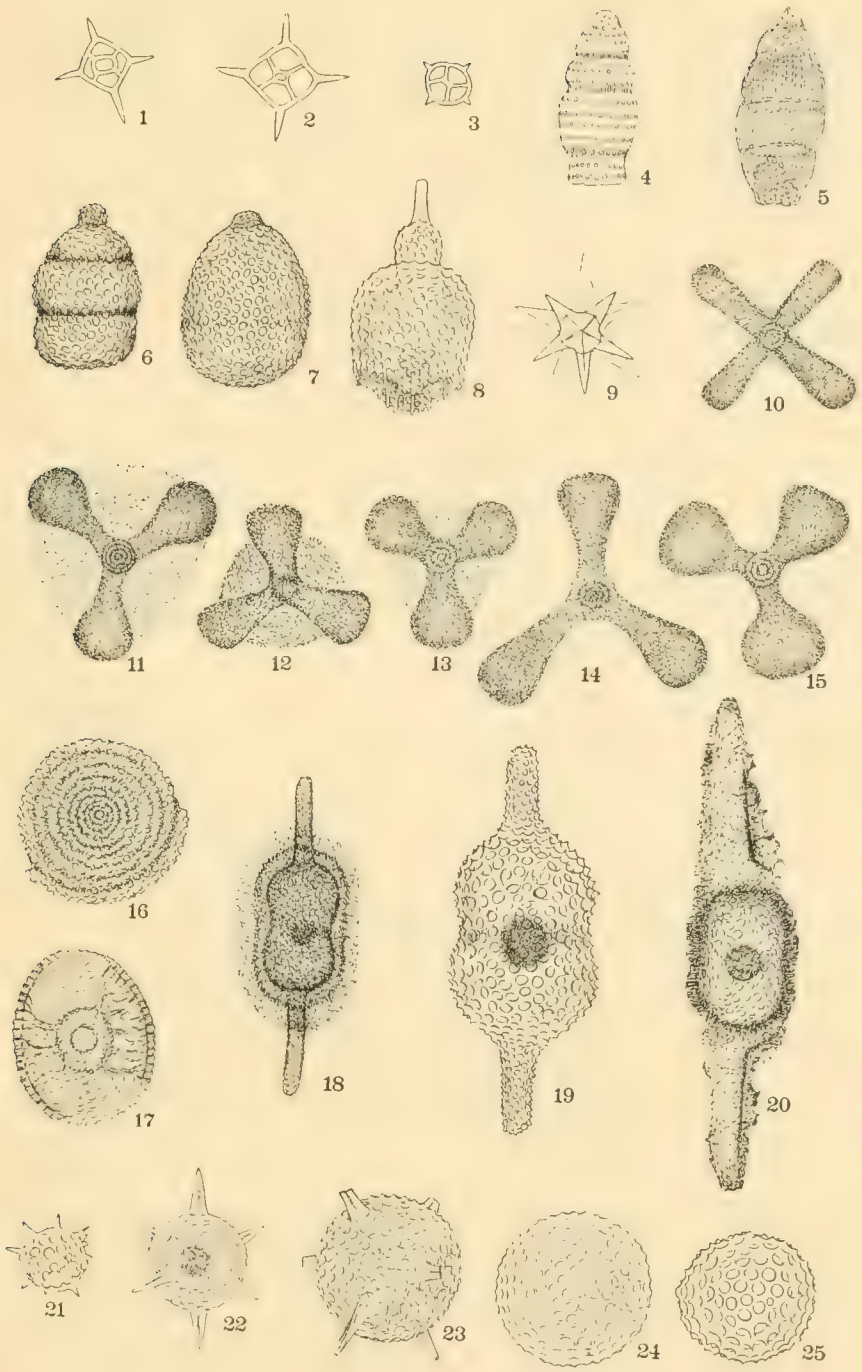

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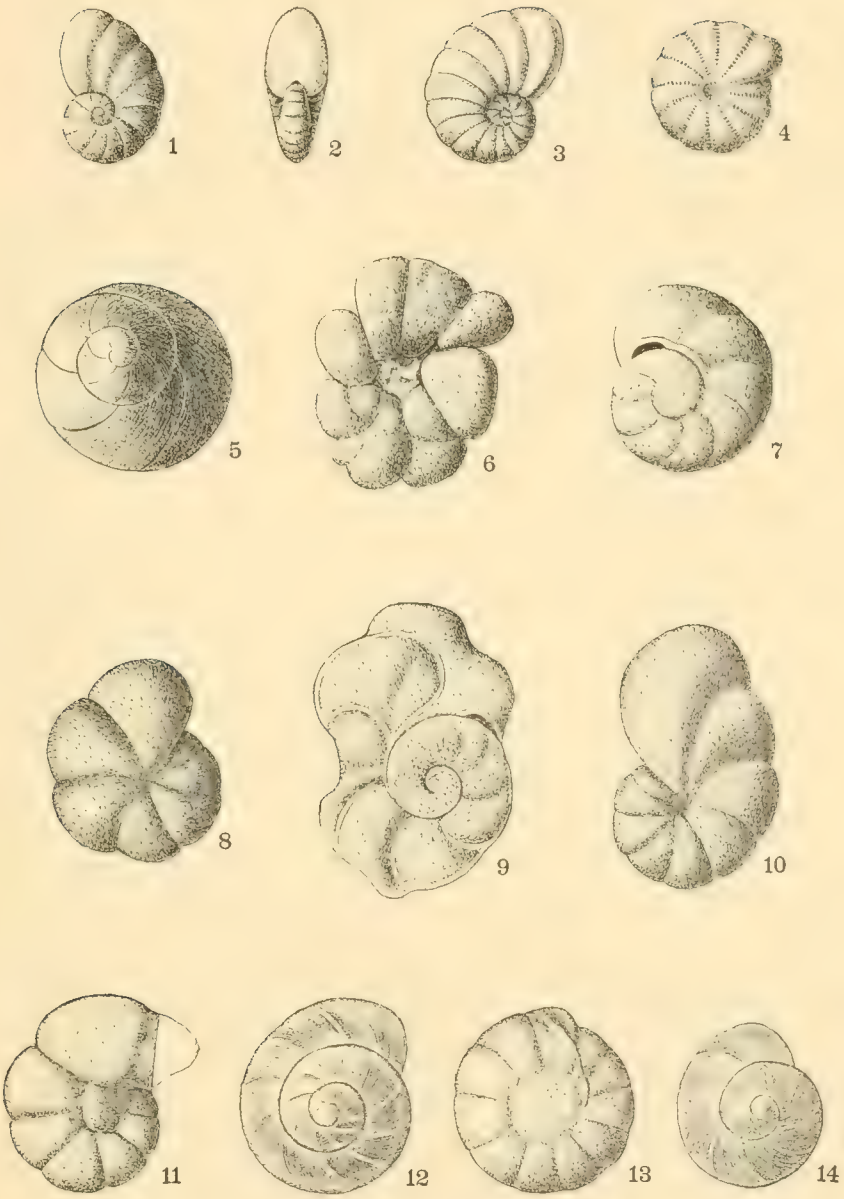

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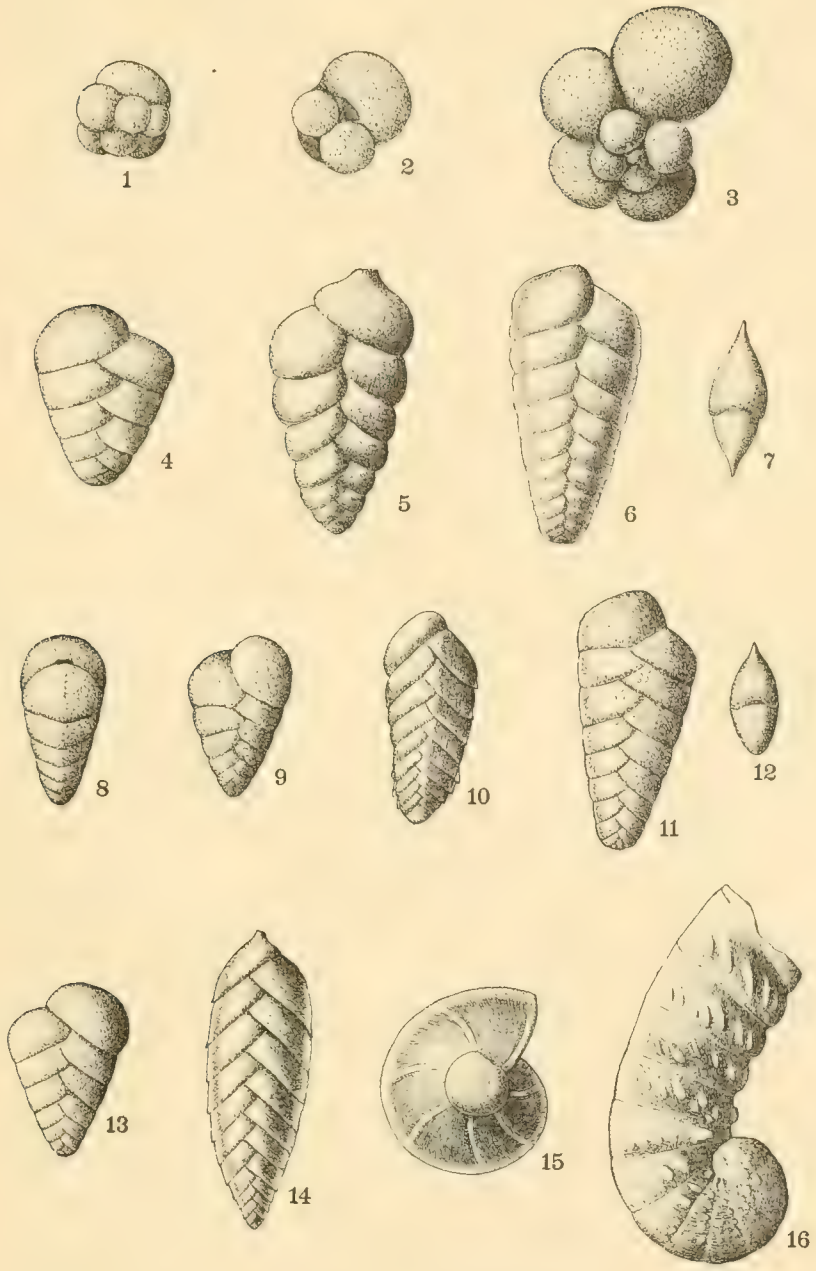

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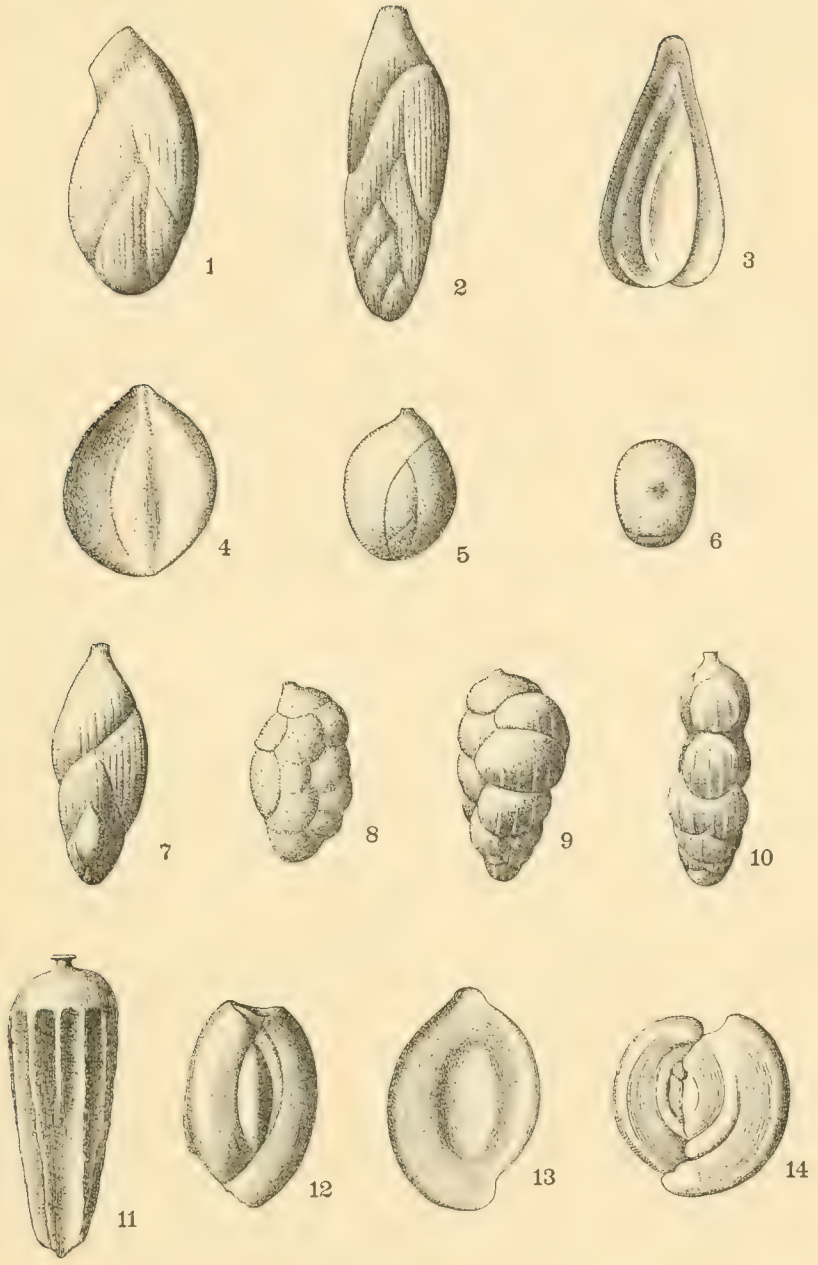

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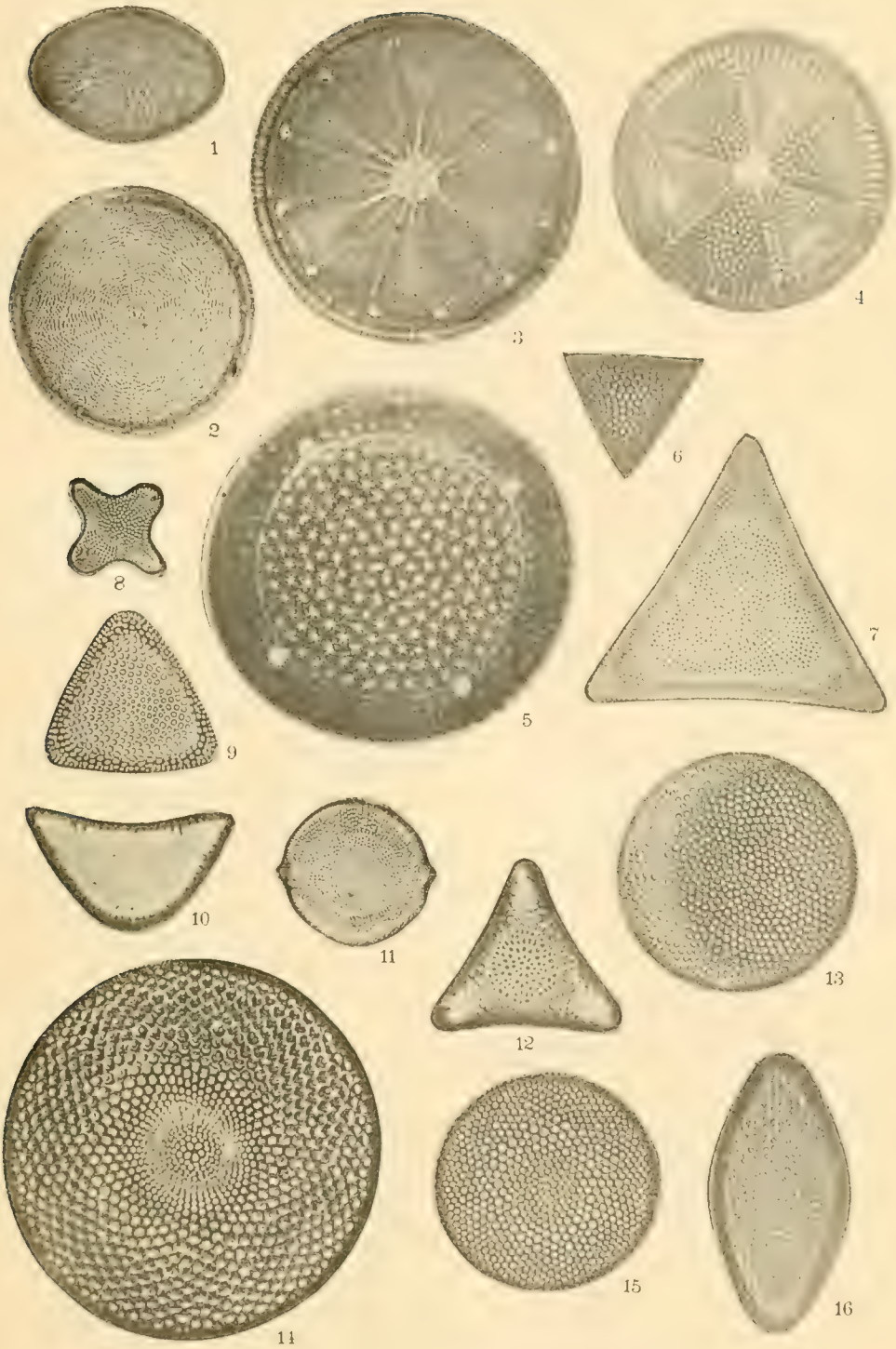

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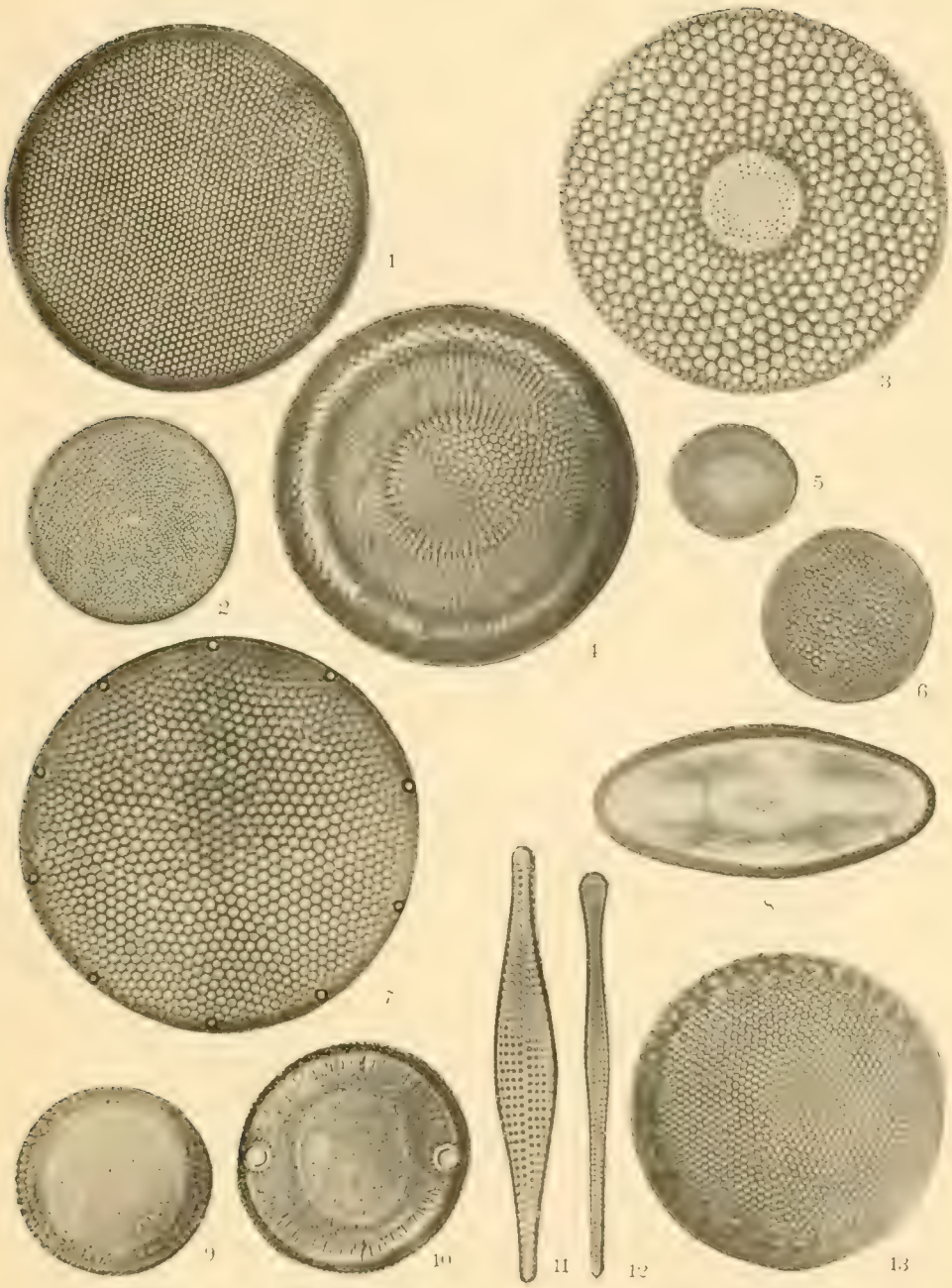

PLANTÆ—THALLOPHYTA, DIATOMACEÆ.

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